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SAVE WITH

The Dietitian and Industrial Feeding[1]

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THE art of maintaining good nutrition is all-encompassing, for it employs agriculture, which creates; commerce, which exchanges; economics, which controls; science, which directs; industry, which produces; and experience, which teaches.

One thing that experience has taught us is the value of dietitians in hospitals and schools; now it is teaching us the necessity of nutrition workers in industry, where, strange to say, up to now very few have been employed. This seems surprising in view of the fact that the air lines, railroads, welfare organizations, the Army, home bureaus, hospitals and schools have long been cognizant of the contribution of dietitians and nutritionists to their successful operation. Now industry is faced with a new feeding problem due to the increased production brought on by the war and is finding that many of the present food service set-ups need changing.

This situation, in many instances, has been due to the mushroom growth of industry during the past two years. The great increase in the number of employees in many factories has placed a strain on the feeding facilities involving problems of food transportation, preparation, distribution, serving and sanitation, especially in new industries that have sprung up far away from the source of food supply.

Many of the industrial cafeterias were installed after the last war and the equipment in some cases is obsolete and space inadequate. Changes were not deemed advisable or warranted during the post-World War years when factories slowed down and personnel decreased, and now, with a second World War, many of these same factories are attempting to feed far more than the facilities will adequately permit. Within the past three years many plants did enlarge and improve their cafeterias, which was fortunate, indeed, especially since stainless steel is today practically unobtainable, along with many other materials once believed essential to the modern cafeteria.

In some plants, desperately in need of every bit of space, and greatly pressed for time, the employees have had to patronize the nearby "beanery" or "hot dog stand" to procure their daily meals. This situation is apt to exist where any large enterprise has been built up in hurried fashion and attention and materials have been concentrated mainly on the layout of the industrial plant rather than the facilities for servicing food. As a result, food stands spring up in the surrounding area and these, improvidently organized, neglect certain measures of sanitation and lack equipment for feeding large numbers. Often there is no running water and dishes are washed in pails and the dish-water tossed out the back door. Flies and cockroaches usually abound. The menus in these places seldom strain the imagination. And between meals the employee, growing ever more weary from inadequate diet, hard work, and long hours, attempts to quench his thirst and raise his spirits with a beverage, usually of the soft drink variety, which does not add to an already deficient diet. As the days go by, irritability, extreme fatigue and inefficiency tend to increase. The worker is likely to attribute all this to work and worry. Definite eye changes may present themselves, along with night blindness.

Before the necessity for increased and highly specialized production, industry concerned itself with maintaining a simple standard of brawn and brain. The employee, uninformed of the problems or possibilities of nutrition, was left to his own resources in getting his "three squares a day," and the fact that he did not do so well as he might have is now being realized. Industrial managers are now alert to the fact that because of certain known deficiencies in the diets of their employees they cannot expect a maximum of efficiency in their work. And because they now know that a poor diet can affect the number of absentee days, the worker's general morale, his incidence of accidents, his vision, and his emotional and physical well-being, they are concerned, and with one accord are anxious to correct the condition as quickly as possible.

The sight of industrial workers rushing off to work without breakfast and grabbing a hamburger and a bottle of "pop" for lunch is a familiar one. No one can do good work without breakfast or with an inadequate lunch. Resistance and efficiency are lowered,

[1] Received for publication August 6, 1942.

and the worker is likely to drag through the day like the experimental white rat on a similar deficient diet. Personnel records are full of the histories of applicants who are considered slow in making adjustments and mentally indolent, but their handicap may be faulty diet rather than lack of ambition or innate mental ability.

That the problem of feeding industrial workers is receiving consideration from all angles is evidenced by the fact that the Committee on Nutrition (1) of the American Association of Industrial Physicians and Surgeons recently sent the following questionnaire to its 1200 members:

DIETARY QUESTIONNAIRE

I. What is approximate number of employees in your organization?
Day shift..... Evening shift..... Night shift.....

II. Supplemental Feeding:
1. Does management provide any supplemental feeding between usual meal times?.....
What is provided?.....
At what time(s) provided?.....
How dispensed? Lunch carts, lunch counters, vending machines (underline).
2. Are vitamin concentrates given to employees?..... If so, what vitamins?.....
.....

III. Eating Facilities:
1. What eating facilities are available for employees?.....
(a) Cafeterias or restaurants
(b) Rolling kitchens
(c) Lunch stands: Hot foods
Cold foods only (except coffee)
(d) Vending machines: (underline foods available) sandwiches, milk, fruit, cake, pie, other
Are there any separate facilities for executives or supervisors?.....
2. Are the facilities operated by the management or by a concession? (underline)
If a concession, do employee organizations benefit by any profits?.....
If management operated, is the management satisfied to "break even"?.....
What expenses other than food are charged to the cafeteria? (underline)
Rent, salaries, light, fuel, equipment, insurance, maintenance.
3. What proportion of the employees use the plant cafeteria or lunch service?.....
4. How much is the average meal check?.....
5. Do you employ a trained dietitian as manager of your restaurant facilities?.....
If not, what qualifications does the manager have?.....
.....
6. Does the plant physician have any jurisdiction over or any connection with the cafeteria service?.....
To what extent?.....
7. Are combination plate lunches served?..... If so, at what price?.....
To what extent purchased?..... Which of the following do they include? (underline)

Soup	Potato or substitute	Salad	Bread and butter
Meat or substitute	Vegetable	Beverage	Dessert or fruit

8. Has any study been made of food selections?.....
Name of organization.....

THE FOOD SERVICE LAYOUT

An industrial plant has several food problems to be solved, but first in line for consideration is the designation of a suitable place to feed its employees. Many industries will be building new cafeterias and remodeling old ones and careful consideration should be given to their location, size and general layout. The dietitian should be the guiding hand that directs, foresees, forestalls and foretells. Good ventilation and day lighting are primary requisites when planning the location, and the kitchen should be the central pivot around which the cafeteria counters are grouped, with every consideration given to saving time, labor and steps. Too often kitchens and dining rooms are relegated to the underground where sunshine and fresh air are excluded.

A little thought should be given to light and color in the cafeteria; it can be spared "that institutional look" at little or no additional cost. Drab surroundings foster drab appetites and personalities; color, deftly and judiciously applied, lifts the spirits and stirs the appetite. Crowded conditions, favoring claustrophobia, give no rest to weary nerves and muscles needing relaxation. The simple expedient of allowing 10 square feet per person permits adequate eating space.

Floors should be the type which will not absorb grease and dirt, can easily be cleaned, and will look clean. Not more than six should be seated at a table.

MANAGEMENT OF THE FOOD SERVICE

The dietitian as manager of the industrial cafeteria must at all times be a good housekeeper. In allocating duties there must be no overlapping of jobs, and an effort must be made to have an adequate staff and avoid overtime pay, as this can quickly run away with her costs. The cafeteria should attempt to be self-supporting and pay dividends in improved nutrition, good health, and general satisfaction. The workers, upon whom so much depends,

must be able to obtain good food at comparatively low cost. "Low cost" means a meal that can be obtained for not over 30 cents.

The hardest and most essential part of food work is to learn the business of buying, yields and costs. This takes years of continuous study, sound judgment, plenty of sales resistance, and lots of experience. With an experienced dietitian heading the industrial cafeteria, food will be more wisely purchased and more carefully planned and prepared, and the charge to the employee proportionately less. Standardized recipes will be used in food preparation; meals will be served that are attractive in appearance, nutritionally adequate and sold at the lowest possible price. Offering the employee a complete plate lunch is the best method of "selling" good nutrition. Cafeterias that offer a hot plate lunch for 25 or 30 cents do a land-office business. If the primary consideration is to be price, then the dessert can be omitted. The choice of vegetables should include a salad, tomato juice, cooked vegetable (or fruit juice). Some places allow a choice of vegetables or soups, but this is not advised unless the soups are prepared with vegetables.

Many cafeterias are able to serve a plate lunch at a very reasonable price as the "overhead" expenses charged to operation are partially defrayed by the company. Most well-run industries have found they have to subsidize part of the expenses of the cafeteria in order that the employee may receive more for his money and in the interest of promoting good nutrition and keeping up his resistance, efficiency and morale. Some serve a full-course meal for 25 cents, including a soup and dessert, and even with rising prices have not changed their policy. This greatly contributes to good-will, to say nothing of the immediate benefit to the employee.

One advantage of the plate lunch, other than the nutritional, is the facility of service and the rapidity with which trays can be served from a separate counter. The following skeleton menu could be used in most cafeterias to good advantage:

Select Five Items for 25¢	*Select Five Items for 30¢*
One from this list Meat, fish, cheese, chicken	*One from this list* Meat, fish, cheese, chicken
Two from this list Soup, vegetable, salad, juice, potato	*Two from this list* Soup, vegetable, salad, juice, potato
One from this list Milk, chocolate "chill," coffee or tea (hot or cold)	*One from this list* Milk, chocolate "chill," coffee or tea (hot or cold)
One from this list 1 roll, bread or muffin and 1 square butter	*One from this list* Fruit, ice cream, pie, cake, pudding
Dessert is extra	*Bread and butter is extra*

Salad plate with beverage and dessert	30¢
Salad plate with beverage	25¢
All à la carte orders priced separately	

THE MEAL SCHEDULE

One cause for concern is the short lunch period for shift workers. Formerly, when more time was allotted for meals the worker could easily get to and from the cafeteria and have time to spare; but now some other provision must be made for his meals, for he cannot walk to and from the cafeteria, stand in line with his tray, eat a good meal and get back to his machine in an abbreviated space of time. Many will forego the meal in favor of a cigarette or beverage. Others will bring a sandwich and eat it without leaving the department, and still others will dash across the street for a "red hot" or an ice cream cone. All this is not conducive to good digestion and steady nerves, both of which are needed to turn out the implements of war.

One means of offsetting the difficulty is by seeing that elevators to the cafeteria are always running, that there is plenty of help at the serving counters, that no one has to wait while food is replenished, and that bottlenecks are avoided at the cashier's cage.

Workers state that they cannot eat hurriedly when they are tired, that if they do, they become nauseated. Many would prefer a hot meal, but they bring a lunch from home so that they can eat leisurely and still have time for a smoke. Their lunch may or may not be supplemented with additional food from the cafeteria. In some plants, messengers are sent to the cafeteria by the workers to bring back food orders—usually milk, chocolate "chill" (made with whole milk), sandwiches, and dessert.

When it is at all possible, employees working on shifts should be encouraged to eat in the cafeteria and everything possible done to facilitate service so that they may waste none of their valuable time. In some plants these groups are served at separate counters with additional servers and plates of hot food kept ready for them as they go by, to aid in rushing the line through. It also helps to have the lines staggered—25 or 30 in a group at 5 or 10-minute intervals. When plans are being made to change the meal hours for the various shifts and when schedules are being worked out by the plant management, the dietitian should be consulted, for it is she who knows the problems from the standpoint of the cafeteria and servicing the food.

There are certain procedures which may alleviate the difficulties that arise from shortened lunch periods, such as the following:

1. Use of snack truck or rolling kitchen to carry food to various departments remote from the cafeteria.
2. Serving a plate lunch that is attractive but with limited selection to reduce the time along the counter. This can be changed daily to offer variety, and to include both hot and cold plates.
3. Use of meal ticket books which are paid for once a week and therefore save much time. These have the added advantage of insuring the "food budget" for a week, as otherwise many workers will spend their money the first three days after pay day and are forced to limit their food

from then on. With the meal booklet in their pockets they can eat, regardless of their funds. A $5.50 book could be sold for $5.00 as a promotional idea.
4. Staggering the lines at 15-minute intervals.
5. Increasing the number of servers.
6. Making certain the shift workers are served at a time other than that allotted to those who have a longer lunch period.

Probably all who are in industrial food work have found of late that they have had to change their working schedules almost from day to day. Just as the organization seems to be going well, the second or third shift may take on 400 or 500 new men, which means additional help and a re-allocation of duties in the kitchen. Then again, serving hours will vary according to the time schedules in the several departments, and these schedules are constantly changing. On certain nights in the week, various departments may work overtime, and arrangements must be made to feed the workers. The department head can be of great help to the dietitian in such matters by letting her know as far ahead as possible when any changes will occur.

The one-a-day delivery service has overtaxed ice boxes and storage space in many factories where six full meals a day are served, especially if the refrigeration is inadequate. These are all problems that a dietitian must and can take in her stride, for her experience in food work has taught her to expect the unexpected, and the last few years have certainly been full of the unexpected. Rising food costs, a never-ending line of hungry workers, a shortage of equipment that no amount of money can buy, and above all the lack of trained personnel and the constantly fluctuating staff, are not the unusual but everyday occurrences in these times.

The following organization chart may prove helpful to those who are serving meals to both day and night shifts where the problem is altogether different from serving by day:

24-Hour Meal Service

No. Served	500	1000	1500	2000	2500
Dietetic Manager	1	1	1	1	1
Dietetic Assistant	—	—	1	2	3
Head Cook	1	1	1	1	1
Assistant Cooks	1	2	3	4	5
Pastry Cooks (excluding bread)	1	1	2	3	3
Butcher	—	—	1	1	1
Salad Preparation	1	1	2	2	3
Sandwich Preparation	1	2	2	2	4
Vegetable Preparation	1	2	2	3	3
Store-room	1	1	1	1	2
Porter	1	1	1	2	2
Pot and Pan Washer	1	2	2	3	3
Cleaners	1	1	1	2	2
Totals	11	15	20	27	33

BETWEEN-MEAL FEEDINGS

Between-meal feedings are another problem worthy of discussion. Plants that furnish nourishing beverages (whether gratis or not) have commented practically without exception on the value of the between-meal feedings. The employees say they are less tired or irritable, and that they have more "pep" and enthusiasm for their work. Those who breakfast at 6 a.m. and do not eat again until noon, frequently complain of weakness and fatigue about 10 a.m. and the same is true of those who lunch at 11 a.m. and do not eat again until they reach home at 7 in the evening. Many complain that they get so hungry about 10 and 3 o'clock that they feel faint and are unable to concentrate on their work and by mealtime have lost their appetite entirely. This can easily be corrected by a glass of milk or fruit juice and should not interfere with the coming meal. These beverages can be served in paper containers which can readily be collected, thus leaving no refuse and avoiding the hazards of glass. There are some companies, who, because of the nature of their product, cannot sanction eating at the machines, as any crumbs or acids would seriously impair the finished material. Some employees have not been able to take time out except at meal hours (when an alternate is provided) as they cannot leave their machines. Others are working on projects so essential to the war effort that every minute away from work hampers those at the front, but they would welcome a glass of milk if it were brought to them without unduly interrupting their work.

These are some of the negative factors concerned with between-meal feedings which must be considered. Others "in the know" have objected to the idea because of late these refreshments have too often consisted of carbonated beverages that contain only a small amount of sugar, carbonated water and real or synthetic flavoring. (In some cases saccharin replaces the sugar.) Vitamins and minerals are notably lacking in these; while they may give "a lift," because of the small amount of sugar and pleasant coolness, foods which contribute important nutritional essentials would do the same thing and enhance the diet as well.

Haggard and Greenberg (2), who have done considerable research on between-meal feedings, state that: "The average individual finds it beneficial to eat between meals in that he gains some feeling of well-being, some relief from tiredness, and increased productivity; and while there are some who do not experience these benefits, there are others who find between-meal feeding an absolute necessity in preventing marked tiredness and decreased productivity."

Our records of diet histories reveal very favorable results when milk or chocolate "chill" and assorted crackers are taken between meals. Some gain weight, and others state that as a result it is easier

to keep their minds on their work, that they do not have that "let-down feeling" and are definitely less fatigued at the end of the day. One company discontinued the sale of soft drinks and within six weeks' time had more than doubled its employees' consumption of milk and chocolate "chill." The men complained for a day or so and then began taking milk and forgot all about the soft drinks.

C. G. Gardiner, managing director of National Catering Service of London, states:

> Seeking to discover why output rose and fell and how it could be maintained, industrial research centered on the break with refreshment, drawn there by sheer weight of evidence. . . .
>
> Many of the problems of industry, concerning not only output, but absenteeism and health, accidents, labor turnover and contentment, were found to be related to breaking the long spell of work with a mid-shift refresher. . . .
>
> Production graphs showed over and over again that output gradually lessened after 2 hours of peak production, until by lunch time, it reached rock bottom. The longer the work spell, and therefore the foodless spell, the steeper was the fall in output. Often this foodless period without stoking up the engine was as much as 6 hours—far too long for efficiency. . . .
>
> It was found that hands took their rests and nibbles of food surreptitiously if no other way was allotted—Even at the cost of money lost on piece rates, they made an instinctive break in monotony. . . .
>
> Factory owners who substituted the official for the unofficial discovered that it paid. The problem was no longer "should the workers have nourishment?" but "how can we get it to them efficiently and quickly?".

EDUCATING THE EMPLOYEE IN SOUND NUTRITION

Individual instruction is by far the best way to put over an idea and at the same time determine the problems, motives, diets, economic, mental and physical handicaps of employees. Concentrating on the over and underweights makes a good beginning. Referrals can be sent by doctors and nurses and an inventory kept of all old and new employees who need diet assistance. In Britain it has been found that men who were underweight when joining the forces were more apt to be invalided out than the overweights, and capacity to endure physical stress was found most commonly in overweight men.

In an article on "Trends in Nutrition" in the January 18, 1941 issue of the *British Medical Journal*, Sir John Orr writes as follows: "The primary effects of malnutrition as seen in the deficiency diseases are well known. Only one—the effect on working efficiency, which is of special importance at the present time—need be referred to here. The improvement of the diet of workmen whose diet was not previously up to the standard for health is followed by increased output without any conscious increased effort and also by a reduction in the number of accidents."

Our experience with large groups of underweights bears out this contention. We have found them anxious to gain and eager to cooperate. Many give a history of having been told it was "natural" for them to be thin and that they "inherited" their leanness. This does not often appear to be the case. They merely need more food and more rest. With their food intake too low, they become easy victims of fatigue, "nerves," gastro-intestinal upsets, anorexia and unrest. They may say that they "eat like a horse" or "eat all the time," but when food histories are taken we often find that these underweights nibble at their food and never eat between meals. Others, a minority, actually do consume large quantities of food. While there can be several factors contributing to their underweight, food is usually the first consideration. Lack of rest, worry, an insufficient amount of the protective foods, overwork, and excessive smoking appear to be contributing factors that bring about this vicious cycle.

If we could determine why one person eats so little and gains so much and another eats so much and gains so little, we would have solved one of the real riddles of nutrition. Hundreds of our employees from the various plants are on diets to gain weight and "report back" regularly for weight check-ups. The food history of each is taken and an individual weight record kept. The same procedure is followed with the overweights.

The dietitian's opportunities for educating the employee are many and varied. In food work, for instance, one cannot get away from teaching, as every new employee must be "conditioned" and instructed in his duties, and there must be a follow-up to see that duties are performed in conformance with instructions. This is all informal teaching and it should also include those in front of the counter who, apparently suffering from opsomania, linger on, debating over the relative nutritional merits of a food, and are very willing to have someone make up their minds for them.

GROUP INSTRUCTION

Pamphlets on food can be sent into the home where the housewife can take up the cause. These can be published by the individual company or can be obtained in large quantities from countless commercial organizations and the government.

The *bulletin board* is another good method of putting across an idea. The boards should be placed in strategic locations where the items are easily perceptible to the eye—in the niches of the entrance ways, on rest-room walls, in elevators, lobbies, and, of course, the place *par excellence*—the cafeteria or dining room.

Exhibits are an easy means of dispensing nutrition information, but to be effective they must be brief and to the point. It is better to have the observer carry away one forceful idea than to present ten and have him remember none. Recipes, menus and anything available concerning food that has practical application are always welcome. Instead of merely stating that liver is high in vitamins, with charts to

prove it, show ways of using it in the home. (Meat loaf, with one-quarter of the ingredients ground liver, sometimes more, will not taste too much like liver and can be given to those who object to liver as such. Housewives like an actual demonstration of this type because it is tangible and they can take it back to the kitchen and try it out at family meals.)

Journalism is another means of presenting nutrition to the public—through newspapers and periodicals, and over the air. The company magazine or paper will reach the largest number of employees and is carried into the home, where wives, parents, children and friends can discern its message. The phraseology should be simple and the information practical.

Diet lists that can be given out by the company doctor or dietitian are informative and helpful, especially if they include a week's set of menus.

Motion pictures present nutrition facts in dramatic fashion and are very effective when in color. In the last year or so some good educational films on nutrition have been produced which are available at little or no cost.

The *cafeteria*, of course, offers by far the greatest possibilities for inculcating sound ideas in nutrition, but the foregoing educational tools can be tied in with the cafeteria as a teaching medium. When the cafeteria is first opened, the dietitian will be busy instructing and organizing the personnel, getting menus revised and improved and the food costs down, and it may take time to incorporate all of these educational possibilities, but her "plan" should include them for the future.

We can profit much from the experience England has had in trying to furnish adequate diets to industrial workers. There is now a law requiring that the "Oslo" meal be served in all industries having over 250 employees. This meal consists of milk, raw vegetable or fruit, and whole grain bread and butter, requires little preparation and no cooking and averages 25 cents in cost. Margaret Wright (3) reports that when workers were allowed a choice of the Oslo meal or their usual lunch, both at the same price, the Oslo meal was the most popular. Workers in heavy industries are also allowed additional food rations.

THE WELL-FILLED DINNER PAIL

As for those who carry a dinner pail, no one until now has been much concerned with the contents. The wife packed the lunch and she included hearty foods, knowing her husband had a big job to do and needed a lot to eat. Her chief concern was whether the food looked appetizing, tasted good, or was too expensive. Now she must be taught that more than "hearty" food is needed.

The lunch box should be large enough not only for sandwiches and a thermos bottle but also for small cups of salad and for fruit. The food should be the type that is easily eaten. Small glass containers or paper cups with covers should be used. The lunch box should include a selection from each of the following five groups.

1. Meat, eggs, cheese, chicken or fish (plain or in sandwiches or salads).
2. Milk or chocolate chill (prepared with whole milk), or cheese.
3. Vegetable (raw or cooked, plain or in combination): carrots, celery, tomatoes, cabbage, cauliflower, onions, beets, peas, lettuce.
4. Fruits or fruit juice (fresh, dried or canned): oranges, apples, grapefruit, peaches, pears, cherries, berries, apricots, prunes, figs, dates and raisins.
5. Bread (whole grain or enriched).
6. As supplements to the above: soups, tea, coffee, relishes, cookies, cakes, puddings.

Following are a few sample menus: (1) deviled eggs, fig and nut sandwiches with lettuce, whole tomato, milk, and peaches; (2) meat-loaf sandwiches with lettuce, cole-slaw, chocolate chill, pear, and gingerbread; (3) cold sliced meat on rye bread with lettuce, carrot, celery and raisin salad, milk, orange, and Graham crackers; (4) fried chicken, nut bread sandwiches, mixed vegetable salad, milk, fruit cup, and cookies; (5) cottage cheese with diced celery, carrots and parsley, blueberry muffins, lemonade, banana, and oatmeal cookie; (6) vegetable soup, hard cooked eggs, pumpernickel, lettuce and mayonnaise sandwiches, cheese cake, and grapes.

VITAMIN SUPPLEMENTS

It might be apropos to say a word here about vitamin supplements. Before entering industrial work I felt just as many other dietitians probably feel—that a good diet was all that was needed. But in the hospital we had control over all the diets and we saw to it that staff and employees got three adequate meals a day. In industry we have little control over what the workers eat except at the one meal. There are many, too, who bring their own food from home or get "pick up" meals from nearby restaurants. Our food histories have shown that some omit breakfast or at best eat inadequate breakfasts and often lunches. Even a good evening meal will not compensate for the inadequacies of breakfast or lunch.

Many of our employees who have supplemented their diets with vitamins, have reported less fatigue, increased energy, and less eye strain after taking them. Why not give them vitamin supplements to speed their nutritional progress and enhance their general efficiency? But with every bottle of vitamin tablets distributed in our company a card is included bearing the following information:

A Word of Caution

These vitamin tablets are not a substitute for a proper diet. Other food essentials are often omitted, such as proteins and minerals, which are as necessary as vitamins.

Your daily diet should include these protective foods:

3 vegetables
2 fruits
1 pint of milk
2 meats or alternative (fish, cheese, eggs or poultry)
3 squares of butter or enriched substitute
1 whole grain or vitamin enriched bread or cereal
1 egg

The Medical Department

CONCLUSION

A qualified dietitian can be of inestimable assistance in alleviating the food worries that beset industrial management. Many industrial leaders have perhaps but vague ideas of the duties of a dietitian. Some may not realize that she could save them money, improve their food service, lessen the absentee days, and incidentally, improve industrial relations, for well-fed workers tend to be satisfied workers. There are unlimited possibilities for bettering the nutrition of the industrial worker, and it is the responsibility of the dietitian to bring this about *now*, when feeding must be done "around the clock," and when ultimate victory rests so largely upon the shoulders of industry.

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(2) HAGGARD, H. H., AND GREENBERG, L. A.: The selection of foods for between-meal feeding in industry. J. Am. Dietet. A. 17: 758, 1941.
(3) Royal Institute of Public Health and Hygiene, Vol. 3, p. 253.

Diabetic "Cures"

Every physician interested in the treatment of diabetes mellitus receives numerous queries from patients regarding "cures" or "substitutes for insulin" or "insulin which can be taken by mouth." There is no specific information regarding the particular leaf extract [rag weed] mentioned in the query. It is, however, but one of hundreds of similar extracts, some of which have been studied in detail and none of which have proved of any practical importance. Whenever such an extract is reported to have helped control diabetes mellitus, it can be safely assumed that its effect has been due to the diet (which usually is prescribed with the nostrum), to a diuretic effect (decreasing the amount of sugar in an individual specimen but not affecting the total excretion) or to other extraneous factors. Wilder recorded that some extracts of plants do have a sugar depressing principle, but they have not proved of practical importance. These were reported by Collip and later by Best and Scott. Myrtillin, an extract of blueberry leaf, was studied carefully, particularly by Allen. Numerous substances of this nature are included in the monograph on insulin by Hill and Howitt. The Chinese, of course, long have studied the effect of plant extracts, some of which are discussed by King and his associates. Another reported plant extract with hypoglycemic potency is one from the roots of the shrub called "devil's club" (Fatsia horrida), which it is reported has been used for centuries by the Indians of British Columbia.

Guanidine derivatives, synthaline and neosynthaline, have been given a thorough clinical trial and have been discarded.

It should be stated that at this time the only successful treatment of diabetes mellitus is based on prescribing the proper diet and the injection of insulin when it is necessary. Many lives are lost when patients are encouraged to rely on "diabetic cures." It is true that these nostrums and extracts probably do not cause any harm to a patient suffering from mild diabetes (although they do no good); but they account for deaths, particularly when prescribed for children whose lives require the intelligent use of insulin by injection.—*Queries and Minor Notes: J. A. M. A., 119: 1234, 1942.*

Nutrition Education in School Lunchrooms

CONSTANCE C. HART
Director of Lunchrooms, Board of Education, Rochester, New York

TODAY the impact of a world at war affects every phase of our lives. The situation offers to every school lunchroom manager a challenge greater than she has ever faced before. Upon her shoulders rests the responsibility of helping to feed the younger generation in such a way as to fit them to meet the mounting demands of the days to come.

Although the school lunchroom manager's load is heavier in some ways, in others it is easier. For the thinking public is more than ever aware of the great contribution the school lunchroom manager has to make. She is now receiving help and cooperation from educational authorities, school co-workers, and state, federal, and other agencies, while her specialty, nutrition, is rapidly taking a place of prime importance in the life of everyone. Although this sudden boost has come about because of a national peril, other factors have been contributing steadily and progressively to this increased interest over a period of years.

Through scientific knowledge of food elements we are aware of the requirements for optimal health. Now we have a working knowledge of the vitamins, minerals, proteins, and other food elements that are needed for the proper functioning of our bodies and also of the quantities of these elements required for the highest efficiency and vitality. To the youth of college age, as a survey of their diets shows, have come the benefits of our increasing knowledge of nutrition. Witness the fact that college students today are taller, heavier, healthier than were their parents in their college days.

Now, while the facts and figures concerning large numbers of our people existing on inadequate diets are widely publicized, is our opportunity to plant the seed of good nutrition in the school child's mind. We must prepare the soil, sow the seed, cultivate the budding sprouts. And in due time we will see the full blooms, not weak and puny, but strong and sound, ready to weather the storms of the present and to provide a healthier generation for the future.

Proper feeding of the child in school is only a part of his health program, but it is fast becoming the greatest single means for mass education upon which we must depend for rapid improvement in health standards. With the wide gap between theory and practice, between our recommendations and the food the child actually eats, we are fundamentally concerned. Part of the discrepancy between nutrition theories and their practice in schools has an economic basis, but to a larger extent it is probably due to lack of knowledge on the part of parents, of teachers, and of pupils. Here lies our golden opportunity, either to take the initiative or to cooperate with parent groups, with other school departments, and with community organizations. It is not always enough that the child be given a balanced meal at noon if the other meals are totally lacking in items necessary to his diet. Better perhaps to see that the school lunch contains substantial amounts of the special nutrients most likely to be lacking in an average diet. But this is not easy to do, as only too often funds for school lunches are limited. And so we return to that powerful tool—cooperation.

COOPERATION OF SCHOOL AUTHORITIES

Fortunately (and I hope you have all found this true), we are getting more and more cooperation from educational authorities in the promotion of better nutrition. In Rochester we were greatly encouraged when Mr. Spinning, our superintendent of schools, in his opening address to the teachers listed "sound health and nutrition" as deserving priority in the field of education. I should like to quote you a little from his speech:

> The ideals of the United States are the ideals of the schools. We shall hold to those ideals, and we shall assist in the defense effort to the best of our ability. Like every other institution, we must, of course, give thought to how we can serve most effectively.
>
> With so much of the world given over to destruction, we can take comfort that our job deals with construction—building knowledge, building skills, building character, building lives—the kind of work that goes on in your classroom every day. . . . To all that is denied in the philosophy of totalitarian schemes we must give importance. We must stress those elements which give status to the individual and help him to take a valued place among his fellows.
>
> The first of the areas I would mark out for special em-

phasis this year is that of health. I should like you, no matter what your subject, field, or special interest, to have a part in that emphasis. Whether it be for outright war itself, for defense labor, or for the constructive work which must follow the war if world chaos is to be averted, as indeed for the pleasant paths of peace, health is a first essential, a priority. Even for good school work it is of prime importance. . . .We shall want to make children and parents more than ever aware of the importance of sound nutrition. Research continually brings us new and important knowledge in this field. I call upon our health education, our home economics, and our lunchroom departments, working together, to see that basic knowledge with regard to adequate nutrition is expressed in simple terms and made available to every teacher.

I am inviting every classroom teacher to give constant attention to good health habits, to hold frequent discussions on nutrition problems appropriate to the level of her group, to be alert for signs of fatigue, both mental and physical, and to change the program accordingly.

While we shall wish to make it smart to be healthy, and while we shall be positive in our efforts to carry forward a school-initiated and a school-developed campaign for robust health, we shall, I hope, go about it considerately and sanely. We don't want to create anxiety states or to break health out of the intensity of our desire to make health.

Nor shall we as teachers be so short-sighted as to neglect our own health. We should be examples to our flocks.

ASSISTANCE OF SURPLUS MARKETING ADMINISTRATION

As I mentioned earlier, state and federal agencies are cooperating to make the school lunch program a vital and functional one. The Surplus Marketing Administration has been responsible for the development of a school lunch program in many communities, and has been more than anxious to cooperate in the expansion of existing programs. In donating foodstuffs to state welfare agencies for subsequent distribution to needy families and school lunches, many items were reserved exclusively for school lunches for undernourished children. Plans for the utilization of surplus foods are designed to be very flexible and adaptable to suit local conditions. It is very much to the advantage of each community that every effort be made to provide for the sponsorship of such a program. At the present writing we hope the SMA school lunch program will be continued.

Until this year it was possible to know what commodities in general would be available for the whole year, and it is hoped that some over-all program can be worked out now, so that sponsors of free lunch programs can plan more comprehensively. Last year corn meal, corn grits, Graham flour, enriched white flour, prunes, dried beans and enriched cereals were available all year, lard intermittently, while canned pork and beans were allocated for school lunch programs only. Grapefruit juice, and some honey, raisins, peanut butter, canned tomatoes, eggs, lemons or concentrated lemon juice, and some apples, potatoes, cabbage, onion, and miscellaneous fruits and vegetables were available, depending on the state. In Rochester we had veal, beef and ham for the last few months of the school year.

Before our entry into the war the SMA operated with surplus foods which could be moved to any part of the country because transportation facilities were not restricted. Since the war began the so-called surplus commodities are listed as available through the Blue Stamp Commodity List. They are for the most part regional commodities and are limited by transportation restrictions.

The Agricultural Marketing Administration is promoting a campaign on "Victory Food" specials. This calls to the attention of the consumer seasonable surplus fruits, vegetables and other foods, which would be a glut on the market in the sections where they are grown. Right now (July 1942) there is a 30 per cent increase in broilers and fryers due to the increased egg production. It is hoped that this national program can be tied up with regional and local programs, perhaps on a state basis, so the foods advocated will meet the needs and conditions of the community. It is to the school lunchroom manager's advantage to aid in this program.

Probably most of you have found that some of the foods listed have not been too popular with your children. You have perhaps been experimenting, as we have in Rochester, with ways for making these foods "win friends and influence people." If so, you may be interested in some of our successes. Though we had been using dried skim milk for some time, last year we worked in our test kitchen on the reinforcement of recipes for added food value. We have found that we can use 6 oz. dried milk to 12 lb. potatoes, in addition to the whole milk, when preparing mashed potatoes. It is our experience that a dehydrated soup with a soy-bean base is not popular with students when made as directed. However, if prepared with ham stock, or if ½ gal. tomatoes is used for every gallon of prepared soup, the result is to the children's liking.

Rice is another food unpopular in many districts. We have found it takes education to make it acceptable. One of the elementary schools, at the suggestion of the principal, took rice as the subject matter for an "activity." The first three grades studied about it in all their lessons—geography, reading, drawing. Then as a climax to the activity, the children in assembly put on a program built around the theme of rice. They dressed up in costumes with crowns on their heads. Their leader was a small child, about 6 or 7 years old, representing Uncle Sam, and he couldn't have measured 3½ feet to the tip of his stove pipe hat. He led all the little songs which the children themselves had written to the tune of "Jingle Bells" and "Tramp, Tramp, Tramp, The Boys Are Marching." And they recited poems or little jingles that had been made up about rice. The children carried long carrots, representing the crisp vegetable to be eaten along with rice. Later, they were all given small portions of Spanish rice to taste. Although it was a successful undertaking, the plan is to work next time with smaller groups, rather

than stage a program with all the children at one time. Rice is not a Blue Stamp Commodity at present in this district, but the same type of program can be adjusted for other foods.

METHODS OF PRESENTING NUTRITION EDUCATION IN THE SCHOOLS

The approaches to nutrition education in the schools are many and varied. Through the cooperation of the department heads in each school, information can be given in all courses—geography, reading, science, history, English, and others. Competitive contests can be staged to determine the best slogans, posters, plays, essays, etc. Talks can be given in school assemblies and over the school radio, and articles may appear in the school papers. But to avoid the dissemination of false material, it is necessary to lay a firm foundation of accurate information. Also, the lunchroom manager must be prepared to provide meals that will permit a practical application of the theoretical information. Before the lunchroom department can enlist the support of various school authorities and departments in the dissemination of nutrition education, well-balanced plate lunch combinations must be available for children with varying amounts of money to spend. How often we see attractive menus offered by the lunchroom manager, menus including all the things a child should eat, only to have the child come into the lunchroom and select an unbalanced, nutritively inadequate lunch! It is for just such a situation as this, we all know, that the plate lunch combination is most important. In it we have a well-balanced meal for whatever the child can spend. And after he has had his plate lunch, he may, if he has more money to spend, choose a dessert. But we have first made sure his minimum requirements have been met. By careful planning we were able to serve only whole grain cereal breads in all our lunchrooms last year, and we shall, of course continue this year.

A few years ago when we in Rochester decided to start an organized nutrition campaign, we had to start right from the beginning. As in so many school systems, we had both trained and untrained managers. To refresh the memories of some and to orientate others, an assignment was given to each manager to read books by Sherman, Rose, Bryan, McCollum, the 1939 *Yearbook of Agriculture*, etc. From the notes made, the ensuing discussions, and following an address by Laura Comstock, then nutrition adviser, Eastman Kodak Company, we evolved a working summary of nutrition that could be applied in the schools. This was mimeographed and given to principals, who in turn gave it to heads of departments where it seemed to fit in best. A brief was then made from the summary and sent to home-room teachers so that they could work it into their programs. The lunchroom managers enlisted the help of student councils and newspapers, and some succeeded in securing speakers for assembly programs.

Thus, step by step, we got the ball rolling. As was to be expected, the interdepartment cooperation was better in some schools than in others. Each manager had been given a list of suggestions for posters, such as: "Be sociable—take time to eat your lunch." "Keeping well is a citizenship obligation." "Have you milk on your tray today?" "Never forget to be courteous in the school lunchroom." "If you have 5 cents to spend, you can get the following in the school lunchroom—." Other posters were made and displayed in school corridors, on bulletin boards, etc. The Art Department in one school had all its classes make posters on nutrition, based on these and other suggested themes, and then each child hung his poster in the lunchroom. Some of the pupils made cartoon strips to be placed on the children's trays, a different one each day. School papers participated in publicizing the plate lunches, in encouraging wise food selections, and in emphasizing the importance of good food habits. One manager worked through the student representative body in promoting nutrition education, representatives from the student council interviewing the manager and reporting back to the council. In turn, home-room representatives made reports to their groups.

In some schools the health education classes, and in others the home economics or general science classes, were active. Some classes visited the lunchroom to become better acquainted with the sanitary measures and practices then in effect, and comparisons were drawn between conditions here and those prevailing in the corner food stores. Nutrition requirements formed the basis for class lectures and tray lunches were brought from the lunchroom for analysis. In line with the tendency toward visual education, a "movie" was made in cooperation with the photography class. Some day we hope to have it remade into a more smoothly organized piece of work.

In every field today effective advertising is the keynote in the promotion of ideas as well as merchandise. In Cleveland, Helen Hobson told me they were able to increase the sale of plate lunches in her school from 40 to 400 daily, all through a definite advertising campaign. Much interest can be stimulated, also the sale of plate lunches, through suitable exhibits in corridor cabinets. One particularly attractive display featured raw fruits and vegetables against a background of plate lunch combinations and score-charts. Yellow squash nestled in beds of chicory and kale, and the deep, rich color of eggplant, rubbed bright with a little oil, gave a pleasing contrast. Small bunches of orange carrots and masses of crisp iceberg lettuce were further flanked by beets and turnips and pure white cauliflower. At the front

of the case, in the center, was a large bowl beautifully arranged with all kinds of fruit, and behind the vegetables, plate lunches which incorporated many of the fruits and vegetables in combination, were exhibited at varying prices. In the back of the case appeared a score-chart devised by the American Dietetic Association. This type of exhibit aroused so much interest in the school where it was tried that we have used similar exhibits in other schools. Some had large posters of the score-card made for display around the school building. Since most people like to score and check themselves, it is our hope that this type of scoring will stimulate the children's interest and thought in improving their own diets.

Another school had a vegetable guessing contest that proved very popular, in which both students and teachers participated. A total of 52 vegetables was displayed, each bearing a number, and slips of paper numbered 1 to 52 were available on which the contestants could write their answers. A chicken dinner was given by the lunchroom to the top-scoring boy, girl, and teacher.

A display emphasizing milk and the various ways in which it may be used was most effective. Another exhibit showed lunch combinations that were defective in certain essentials, such as calcium, iron, calories, etc., and there was a chart showing with what foods these lunches could be supplemented to provide a balanced meal.

And so the work progressed sporadically, better in some schools than in others, but all definitely on the right road. Last spring I called a meeting of the directors of the Home Economics, Science, and Health Education Departments to discuss how our lunchroom objectives could be made an integral part of their regular programs. While children in all these classes are taught that they should have milk, fresh fruits and vegetables, whole grain cereals, liver, and eggs in their diets, we want to make sure that there is a carry-over into the lunchroom in the selection of such food. We are interested to see that they actually *practice* what we are *preaching*. It was suggested that 3-minute talks on food and health be scheduled each week in the home-room periods, and in the general assembly if possible. A program is also under way whereby a different essential in the diet is stressed in all classes simultaneously with the featuring of foods rich in this essential in the lunchroom. For instance, foods rich in calcium could be emphasized one week, iron the next, etc. At the same time a questionnaire could go out to the home-rooms on pertinent information concerning the topic for the week, or a general one could go out occasionally. For example: What are sources of calcium? Why does a growing boy need it? What should the evening meal contain? the breakfast? What shall I buy today in the lunchroom to secure an adequate supply of calcium? Exhibits in the corridors would be attuned to the foods featured during the week. In other words, it is hoped to have a concerted drive from all directions to associate the principles taught with every phase of the child's life.

The teachers of general science classes also suggested that animal feeding experiments be undertaken. They made a study of commercial vitamins versus natural vitamins. And the Nursery School division of the Parent Education and Child Development Department has mimeographed some material on a psychological approach to eating, called "The Preschool Child Learns to Enjoy His Meals." This has been distributed to parents.

As an outgrowth of this work, the Health Education Department formulated a small booklet entitled, "Get in Step, Bill—Inside Facts from Your Uncle Sam." This is to be distributed to every child in our school system so that he may take the booklet home. Through interesting illustrations and concise, graphic phrases, the important facts on what you should eat are presented. For instance, such questions as the following are asked: "How Does Bill Repair, Reconstruct, Recondition?" Then on the opposite page we note, "He Eats Proteins: Milk, Meats, Fish, Eggs, Cheese, Peas, Beans, Nuts", with illustrations. The question "What Keeps Bill Warm?" is met with the answer, "He Eats Fats for Heat" and illustrations. "What Gives Bill Strong Bones and Sound Teeth?" is followed by "He Eats Foods Containing Minerals and Vitamins" and appropriate illustrations. And so the booklet continues, with all the necessary food groups included and their function explained. In conclusion, the American Dietetic Association Score-Card on Health is appended.

All of the nutrition work in the entire school system, from elementary grades through high school, is to be based on this booklet.

Our local radio station WHAM has set aside 15 minutes weekly so that parents may be informed regarding proper nutrition and health habits for their children, in line with what they are taught in the schools. Two of our lunchroom managers arranged five of the series of programs. They discussed the items needed for a child's optimal diet, told what the lunchrooms are doing to offer at least one-third of the requirements at noon, and impressed upon the parents the need for supplying the balance in the other two meals.

Now that we have the department heads cooperating, and aided by the incentive of our superintendent's talk, we really feel that nutrition education is installed as an integral part of the child's education, and as such will bring the desired results.

With school lunchrooms in particular and nutrition in general being given national recognition and importance, we have the opportunity we have been working for and we should take full advantage of it. If even one person in a community allows her vigilance to wane, she may jeopardize the fine reputation

school lunchrooms have built up, and start us all on the road back to the lunchroom's early status as a humdrum "beanery." As I said before, a great many lunchroom systems that have been running a long time have untrained or ill-trained staff members, and many of those once well trained have become a bit rusty. Those of us who took nutrition courses years ago can well afford to take some of the short refresher courses offered in many universities and colleges, and to support the refresher courses sponsored by local dietetic and home economics associations, or to join study groups. In general, these courses are designed to bring people up to date on newest methods and data, and none of us can afford to let these opportunities slip by. We school dietitians must be alert, unceasing in our efforts, if we are to lead effectively in the work that is before us. There is a greater need now than ever before to raise the nutritional status of our nation in order to achieve an all-out for war goal.

Food—the Raw Material of Well-Being

One of the functions of the state in days of old was "to secure the common health." The term stood for all that served the common weal. Today that concept can bear far richer fruit than ever before; for the medicinal science which merely waits until summoned for help is giving way to a larger art. As pills, poultices, and nostrums disappear, calories, vitamins, and hormones enter the scene. The quest now is for a proper metabolism; and the emphasis falls upon food, which, defined as the total intake into the body, is the raw material of the well-being of the common people.

The importance of food is self-evident. Even the most primitive forms of society were aware of it, crystallizing their ideas into taboos. Every culture that has risen to literacy has had laws on the subject. An unbroken chain of such vigilance runs straight down the centuries from the prohibition of pork in Leviticus to the modern precautions in respect to meat-packing. In the Middle Ages, the manor and the guild sought to insure purity, high quality, and full weight to the consumer. And if, then as now, practice fell far short of legislative preaching, it at least bespoke an ideal not to be overlooked. . . . As measured by what the market will take, there may be an overplus of certain foods, as measured by the norms of an adequate diet, we still live under a deficit economy. But even if this is remedied, abundance would be of little avail unless the body's intake—foods, drugs, ... —is more closely adapted to its function of nourishing the people and preserving their health. In mobilizing the forces of democratic defense, one of the most urgent needs is the conservation of human resources.—*Hamilton, W. H.: From an Introduction to Food & Drug Regulation by Stephen Wilson, American Council on Public Affairs, Washington, D. C., 1942.*

The Challenge of Unused Human Resources[1]

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I THINK there is still a great deal to be done in the way of improving our education and training of youth towards greater efficiency as adult citizens, as well as greater happiness during adult years. Specifically, a child should learn earlier than he does now the fundamental biologic law that he who will not work shall not eat. It is cruelty to our children to delay the training in social and economic responsibility till they are thrust on a not too kind world at the age of 18 to 21. And our education of youth should not be as at present primarily one of brain, but should also be one of the hand. There is no shame and much of very great value in being able to accomplish almost anything that faces the human being in modern life. Furthermore, we need to shed ourselves of the superstition that education stops at the grade school, at the end of high school, or at the end of college. Education could or should continue throughout life. Our brains and our muscles are capable of this. I should like to pose continuous adult education as a program of tomorrow versus continuous adult attention to actually infantile amusements. There is excess and misunderstood emphasis on leisure, on dancing for human defense. The radio, the daily press, and commercial advertisements could and should be made an education instead of, as now, largely deceptive propaganda and amusement. This certainly applies to some commercial advertisements of foods, as I pointed out in my recent article on "Facts and Fancies about Food Fats" in the *American Journal of Public Health*. In brief, I am convinced that we are not getting the most out of our human resources, either in youth or adult life, by our limited, myopic and one-sided traditional educational training.

If we did not succeed so successfully in suppressing the elemental human curiosity with which every normal child is born, the program of serious continuous education for the adult could be more easily brought about and advanced. I do not quite understand how the notion of leisure or complete absence of duties and work could have become identified with the heaven of bliss. I feel certain, as a biologist, that having nothing to do would come closer to a state of Hades than even a world engaged in an all-out war. If we could retain and foster our primitive and native curiosity, we would find so many interesting things to learn every day of our lives that boredom would completely vanish and, health being our portion, tomorrow would always be richer and happier than today because of the continually broadening understanding of the nature of the world and the nature of man. For example, how could any sane man or woman ever be satisfied or satiated with our present knowledge and understanding of human food and human nutrition when we do not even know today what is the optimum diet for man, at least as to quantity, at all stages of his life?

Under more primitive and biologic conditions of human life, as in life on the farm and in agriculture in general, work and responsibility of children and youth have their normal biologic upward curve, as is the case among all wild animals who have to scratch for their living. Under similar conditions of life, as on the farm, men and women past 50, 60 or 70 years also find their niche of productive work, happy in the knowledge that they still have a part in the stream of life. Biologically, man grows in understanding and physical and mental efficiency from birth up to 25 or 30. Then there is a plateau of efficiency for some 20 years, health being present. Then the reversal of the youth curve sets in, the gradual impairment of the physical, and considerably later even of memory and of mental efficiency. A civilization, a social or an economic system, that discards men and women of 50 or 60 as no longer a link in the chain of human labor, as no longer productive physically and mentally, I say such a civilization, such social and economic systems, are thoroughly unbiologic, thoroughly wasteful and thoroughly cruel and inhuman to our fellowmen at the later decades of life. A man or a woman in modern industry, trained to do, and for 20 or 30 years having done only one such small thing as fitting a screw on a certain size nut for eight hours a

[1] Presented before the Kansas Dietetic Association, Topeka, March 20, 1942.

day, may not be able to perform that mechanical feat at the sufficient rate when past 50 or 60. But it is a terrible reflection on our education if that man and woman past 50 or 60 cannot do something else of value to society and to themselves. And it is certainly no indication of intelligent planning on the part of such a society if opportunities for such work are not afforded. In fact, tasks for which men and women past 40, 50, 60 are thoroughly capable lie all around us like mountains, but we do not see them. Social security for our aging population is all right in principle, but it should take the form of labor for which these people are capable and not the form of pay for doing nothing.

DIET AND LIFE SPAN

Since the scientific information on the kinds and the quantity of food required for growth and health is very recent, considering the history of the human race, and still fragmentary and inadequately applied, it is evident that in the past man's diet, both as to kind and quantity, was determined by appetite, hunger, and the availability of the foods. We may therefore assume that underconsumption and excess consumption of foods, starvation and gluttony, emaciation and obesity, are phenomena as ancient as man himself.

Life insurance statistics show clearly that underweight as well as obesity tends to shorten the life-span of man. Dr. McCay finds that when a diet is adequate in quality, but so inadequate in the amount fed that the growth of the animal is practically at a standstill, the life-span of rats is significantly prolonged. In this experiment the control group of rats was fed the same kind of food *ad libitum*, so that this group may have had its life-span shortened by excess eating, that is, by obesity. It is well established that many, if not all persons showing marked and persistent underweight or emaciation have functional disorders interfering with the digestion, absorption, or the metabolism of foodstuffs, excess metabolic rate, or chronic disturbance of appetite and hunger (anorexia nervosa). That such persons die prematurely presents no particular problem, since here we have clearly an excess corrosion of the essential links in the life chain. But why does the overweight person, the obese person, who seems otherwise healthy, die prematurely? This is a fundamental problem in geriatric science, for in the absence of specific disease, overweight or obesity tends to increase in men and women past 40 years of life. Is obesity itself a disorder, a disease? Or is the shortening of the life-span merely a consequence of obesity, as implied in the popular saying that "fat people dig their graves with their teeth?" There may be some interference with respiration and circulation by the crowding of the abdominal organs against the diaphragm. Admitted that there may be hereditary factors in some species, such as the whale and the hog, favoring deposition, or excess deposition of body fat, it is nevertheless true that all animals, otherwise normal, can be fattened by eating in excess of the expenditure of energy. In man, obesity is the result of the same fundamental cause, that is, eating in excess of the energy expended. The work of Dr. Newburgh goes to show that intake of food below the energy requirements reduces body weight in all types of obese people. According to Dr. Warthin, "one quickly learns how much and what one should eat." If this were true one would not see the present multitude of obese people at all ages, and most certainly not among those beyond the age of 40. A fat hog or a fat steer may be an index of intelligent and prosperous agriculture and animal husbandry. But a fat child, an obese man or woman are indices, not of health and intelligence, but of ignorance and sloth. For there is no rhyme or reason in eating to the level of obesity and then taking a poison like thyroid extract to make us thin. We cannot earn the appellation, *Homo sapiens* (wise men), via that route.

During the last twenty-five years, considerable though superficial attention has been given to the possible relation of thyroid, gonad, hypothalamic and pituitary disorders to human and animal obesity. It now seems established, or at least highly probable, that there is no such thing as a primary endocrine obesity, apart from endocrine influences on appetite, hunger, and physical activity. The marked obesity that may follow destructive injuries at the base of the hypothalamus seems to be largely due to increased food consumption because of increased appetite. Endocrine therapy of obesity has been disappointing, except in the case of thyroid extract, and the latter has to be administered to the point of inducing the initial symptoms of the disease, hyperthyroidism, before weight reduction is secured in the absence of reduced food intake. On the basis of present information it seems likely that the development of obesity in some people past 40 years of age is primarily due to persistently excessive eating and the satisfaction of specific appetites for foods, when the rate of tissue oxidation and general motor activity are both on the decline.

It is not difficult to understand why ingestion of food to the point of obesity is injurious to people with reduced factors of safety in the matter of insulin, sugar, and fat metabolism. Such dietary excesses damage by overwork an already impaired mechanism. But in the absence of diabetes, actual or incipient, why does obesity, maintained for years, initiate or aggravate cardiovascular, renal, and other disorders that shorten the life-span? While the answer to these questions is being sought by experiments and accurate observation on mice and men, the prevention of obesity in all people past 30 appears to be a prophylactic imperative, a *must* (in gerontology), for rational, intelligent, and effective living. And as a general proposition, it is safer for the patient to do this by reducing the diet than by taking toxic drugs.

FOOD AND HEALTH

Our country produces probably the greatest variety and quantity of good foods. *Are we making the most of this resource for optimum health?*

For the last ten years we have been told that one-third of the American people are ill-fed, that these 40 million American citizens suffer from malnutrition. In fact, very recently we were told much more. At the National Conference on Nutrition for Defense, Dr. Thomas Parran, Chief of the U. S. Public Health Service, said: "Studies of family diets by the Department of Agriculture in all income groups of the Nation show that one-third of our people are getting food inadequate to maintain good health" and "less than one-fourth of us are getting a good diet." If this is true, that makes it, not 40 million, but about 100 million Americans with an inadequate diet, from any and all causes. The question is: Is this true? These alarming claims for national malnutrition appear to be based primarily upon a series of surveys conducted by the Bureau of Home Economics of our federal Department of Agriculture, assisted in some of the field work and statistical analysis by the Department of Labor. These surveys embraced some 4000 urban and village families of various levels of income and some 2000 rural families of varying levels of income, selected from representative regions of our country. The surveys consist of reports from these families as to how much money they spent for food, and what kinds of food were bought, and, in the case of rural families, how much and what kind of food they consumed from the crops on their own farms. These field investigators (some of them on WPA) had to take or did take the people's word for all of these alleged facts. It is impossible to determine the degree of accuracy or honesty (accuracy as to memory) of whatever member of these families gave the facts or alleged facts to the enumerators. Nor do the surveys indicate the amount of foods actually eaten or the amount of food wasted. The latter factor is probably not inconsiderable, particularly in the families of the higher income groups. I know of no statistics on this point, but on the whole, my experience indicates that the food waste at the table increases with the economic prosperity of the family.

On the basis of the kind and quantity of the food bought or grown on the farms for family consumption, the Bureau of Home Economics estimated the diets of these families as excellent, good, fair or poor. We wish to point out that no physical or medical examination was made of the members of these families. Not even such a simple physical fact as the determination of the body weights of the people involved seems to have been undertaken. I can only express my great regret that the value of these statistics must so largely be left up in the air as regards evidence for good or bad nutrition in our country, since no attention was paid to such an obvious factor as medical evidence of the health status of the people concerned. Good medical examinations of members of around 6000 families in our country do not seem a superhuman task. I feel certain that if competent medical men in the U. S. Public Health Service, the Bureau of Home Economics of the Department of Agriculture, or the Department of Labor were not available, a suitable approach to national and state medical societies would have resulted in cooperation sufficient to carry out such a medical survey at little or no cost to the Government. The surveys as conducted were made at considerable cost to our tax-paying citizens.

Is that the only evidence of national malnutrition? Do our hospital records, our mortality statistics, our medical examination of our young men for the Army and the Navy point to a nation-wide malnutrition in America? Mortality statistics, even were they reliable, would only reveal extreme malnutrition. They would not tell us much about early stages of malnutrition. Between three and four thousand people are recorded as dying from pellagra each year. There is no recent rise in this category. Of course, many more people suffer from pellagra in addition to those who die from this disease, possibly as many as 100,000 cases in our country each year. Advanced scurvy is now almost unknown in the United States. Beriberi is somewhat less rare, especially if we include those cases due primarily to chronic alcoholism and consequent failure to eat enough good food. Rickets is not a killing deficiency disease. We may have anemia from too little iron in the diet. But lack of iron is just one of the many causes of anemia. So national mortality statistics fail to answer our question, but so far as they go, they do not point to a state of well-nigh universal malnutrition in the United States. And the same is true of records of hospital admissions. Of course, you may reply that doctors do not recognize early stages of malnutrition. Well, if physicians don't, are WPA workers and Washington politicians any more competent in this field? According to Colonel Rowntree of the Medical Corps, U. S. Army, the first 800,000 Army selectees of 1941 examined were on the average 67.5 inches tall, or of the same stature as our 1917–18 Army draftees, but our 1941 recruits averaged 8 pounds heavier than those of World War I. According to General Hershey the number of rejections on account of underweight so far is about the same as that for obesity, each accounts for around 4 per cent of the total. So you see that even this does not point to a universal and demonstrable malnutrition. According to the *Statistical Bulletin* of the Metropolitan Life Insurance Company, the average length of life as computed on the basis of mortality of the company's industrial policy-holders in 1941 was 63.42 years, an all-time high for the sixty years that the company has recorded this information. This does not support the claim that nearly 100 million Americans suffer from malnutrition. But I am not willing to go all the way in supreme optimism as does Mr. J. R. Hilderbrand

(*National Geographic Magazine*, March 1942), who asserts that our "machine food age—born of roads, research and refrigeration—has made the United States the best-fed nation in history." We have the food to do it, had we the intelligence.

Well, what happens to us when we do not eat enough good foods? Can we know, without asking a doctor, when we suffer from malnutrition? And if we ask the doctor can he tell us when and what? The simplest situation is this: Assuming absence of chronic diseases, if an adult does not eat enough for energy needs he loses weight, if a child does not eat enough for energy needs he soon ceases to grow. Any layman can strip and step on the scales. The physical and mental impairments following prolonged inadequate intake of essential protein, essential fatty acids, essential inorganic salts, and vitamins are more insidious. They cannot at present be diagnosed even by the physician, unless they are well advanced, and by exclusion of many other factors that may produce similar symptoms—general symptoms such as decreased physical and mental endurance, decreased appetite, etc. The anemias we encounter in the population are usually not due to too little iron in the diet. Nervous disorders and poor intelligence are very rarely due to vitamin deficiency. The signs and symptoms of such dietary deficiency diseases as scurvy, rickets, pellagra, beriberi, and "war" edema (protein deficiency), can be detected and eliminated by any up-to-date doctor. But no one (doctor or layman) can be sure in regard to the early stages of these dietary deficiencies. We have recently been told by a national committee of physicians, who should know, that one of the first signs of malnutrition is decreased appetite, and that laymen can diagnose their own state of nutrition by the state of their appetite for food. This is too good to be true. If it is true, and it is also true that 100 million fellow citizens suffer from malnutrition, it is clear that the American appetite for good food is sunk, and that it probably will take something more potent than synthetic vitamin pills to restore it to a level of national safety.

This sounds discouraging if not alarming, at least to laymen. Must our national safety and well-being in the matter of nutrition be thus left in the fog, pending further medical and nutritional research? Not at all. America is a paradise in the matter of abundance and variety of all the foods requisite for an optimum human diet. And if we are average normal men and women, we still have our primitive urges of hunger and appetite, notwithstanding recently published assertions to the contrary. How do you suppose our ancestors carried on, in the total absence of modern knowledge of food chemistry, vitamin requirements, and the alleged necessity of "a pint of milk a day"? I do not think Sioux Indians got much milk from the wild buffalo. The American Indian had neither cows nor goats. And yet he carried on. It is evident that for the greater part of human history man did very well nutritionally by eating enough of all available varieties of natural foods, guided by his hunger and appetite. Nutritional safety lies in omnivorousness, in consuming, so far as possible, foods in their natural states, and, in the case of fruits and vegetables, eating some of them raw. Some of our malnutritions started with the processing, the refining, and the "purification" of such foods as the cereal grains, modern milling processes shunting the most valuable part of these natural foods into the mouths of chickens, cattle, and hogs. The germ and the outer coats of the grains hold valuable proteins, vitamins and minerals. Human dietary safety on this front would seem to be: Go back to first principles: *putting the whole grain into the flour and the bread.* This can be done. We can learn to like it. There is no more "purity" or nutritional virtue in white bread than in white winter butter. I think we could learn to prevent the oxidative rancidity of whole grain flour. And until we have that problem licked, why not store the wheat, and mill the flour as we need it? I do not see any essential economic principle in storing the flour in place of storing the wheat. In my judgment, the recent addition of a little of the vitamins and minerals now milled out of the grain, and singing peans of dietary salvation over this "enriched" flour and bread, is not a sound policy either for today or tomorrow. Let us get back to first dietary principles on this front also. The whole wheat, rye, or rice grain is one of our least expensive protective foods. On the whole we can trust Nature as to the genuine nutritive elements in the whole grain, yes, trust Nature further than the chemist and his synthetic vitamins. Recently, Professor Drummond (J. A. M. A., March 7, 1942), the scientific adviser to the British Ministry of Food, voiced his reluctance to put the dietary safety of a nation on synthetic vitamins as a long-range policy. He thinks we should and must provide the natural vitamins in the natural foods. I stand on that platform, until we know a great deal more than we know today about foods and human nutrition.

How vital are vitamins? What happens when our breakfast, lunch, and supper do not adequately balance with all the known vitamins every day in the year? The vitamins are vital. Even the kangaroo and the crow do not get on without them. They get all the vitamins required in their natural food. So did our ancestors. So could we. On an adequate abundance of natural foods we store vitamins in the body against weeks and months of vitamin scarcity. If we live mainly on such vitamin-deficient foods as white bread, polished rice, fat salt pork, refined sugars, refined and hydrogenated vegetable oils, refined lard, etc., serious things happen to our health when our body stores of vitamins are depleted, or nearly depleted. It should be obvious to all laymen that every meal every day does not need to be vita-

min-balanced. Our body stores take care of our urgent needs for weeks or months, unless we have already subsisted on the minimum for some time. It is a fact that an adult man in average good health can go without any food whatever for at least forty days, without showing any recognizable vitamin deficiency. At the end of forty days' fast the man is considerably emaciated and more readily fatigued, but his appetite for good food is keener than ever. There is today entirely too much blarney and ballyhoo about synthetic vitamin pills. Under any and all circumstances these pills are said to give us the abundant life, including intelligence, mental stamina, and moral conduct. The tragedy here is this: *few if any of the people who can afford to buy these pills need them, few if any of those who need them can afford to buy them.* The consumer should insist that advertising of food conform to honest and factual education of adults in nutrition, for it is obvious that the consumer pays the freight of all food advertising in the increased cost of the advertised foods.

We are urged to drink milk, and to eat meats, eggs, and vegetables for our needs of inorganic salts. Is that a good insurance? Is it enough? Can we get adequate mineral insurance at less cost through other foods? While it appears true that herbivorous mammals have sought "salt licks" for countless ages, and our forebears fought wars for possession of sea salt as their more sophisticated descendants now do battle for crude rubber and oil, it seems obvious that except for the element iodine in restricted areas of the earth the dietary need of minerals were efficiently met by the common non-purified, non-processed natural foods. So far as I know this would still hold true, except for the faulty cooking of such foods as meats, fruits and vegetables, and the habit of discarding the cooking water. To be sure, the otherwise excellent natural food, milk, is so deficient in iron that an exclusive or almost exclusive diet of milk for weeks or months brings on an anemia due to the iron deficiency in the diet. How does the American dietary stand as to some of the essential mineral needs such as calcium, phosphorus, iron, and iodine? The iodine deficiency in the states whose soil and water were depleted of iodine by the waters from ancient glaciers is now taken care of by putting the iodine back into our table salt. The iodine was there before our ingenious chemists learned to take it out. In so far as purification deteriorates our food, the science of chemistry does not serve man's welfare. Prof. H. C. Sherman of Columbia University has long held the view that the American diet is probably too low in calcium, and possibly in phosphorus, for optimum nutrition. This problem is complicated by the fact that a modicum of vitamin D is involved in the adequate absorption and utilization of calcium and phosphorus, particularly in the growth and maintenance of our bones. *I wonder if the possibility of a dietary danger in this field could not be met, universally and without cost, by adding a little calcium, phosphorus, and iron to our table salt?* This should offer no insurmountable difficulties, and there is no evidence that a slight excess above actual needs of these minerals works any injury to our health. We are urged to eat milk for its calcium. Yes, milk is a good source of lime. But milk is a relatively expensive food, and even in our country, with a plethora of foods, there is not enough milk to go around, at least as long as we insist on butter and cream for our table and turn so much of the valuable skim milk into channels other than human food. I think we should put a little lime, phosphorus, and possibly iron into our table salt as a national insurance towards good nutrition. But I wonder how many vitamin B pills we must consume before we nurture sufficient intelligence to take this apparently rational step.

It seems clear that we do not know the extent of malnutrition in our country. But some malnutrition, especially pellagra, obesity, underweight, anemia, does prevail here. Why? The causes for the malnutrition that does prevail are both numerous and complex. Among these are: chronic infections, faulty dietary habits, mental conflicts, ignorance as to what makes up an adequate diet, personal laziness, poverty, misleading food advertisements, denaturing of such staple and standard foods as flour (wheat, corn) and bread, too great consumption of purified sugars and candy, and waste of good foods, especially fruits and fats.

CONCLUSION

Since man and his health constitute our most important natural resource, we must proceed without delay and with all the brains at our command to find better and more reliable methods to diagnose the signs and symptoms of *incipient dietary deficiencies.* Such knowledge will give us a clearer understanding of what constitutes an optimum diet for optimum health, so far as health is determined by diet alone. This, it seems to me, is a primary charge on the science of medicine, the science of biology, the science of chemistry. But we who labor in these fields will proceed faster along these lines if we are encouraged by an understanding of the urgency and the difficulties in the problem and the cash cost of its solution on the part of all citizens.

Pending this greater scientific understanding as to human food needs for optimum health, these important things can and should be done now: (a) cleanse our present food and nutrition science of all fads, of all commercial and political propaganda; and (b) move it from the ivory tower down to comprehension and appreciation of the common man. We have the brains and the cash to do it. Have we the will to carry on this hard task, when a possible better health for all is the only goal, the only reward? I wonder.

The Critical Food Situation in France

CAROLINE R. HILL[1]

Mrs. Hill, a graduate of Wellesley College, who received her master's degree from Radcliffe College, wrote the following paper while attending a two-week Workshop in Nutrition, Emergency Feeding and Child Care, at Simmons College this July. She has lived in France for long periods following the first World War, and while serving as Chairman of the Committee, "Aide Aux Oeuvres," American Red Cross, Paris, 1917–19, and more recently as Director, Milk Distribution, American Friends Service Committee, Marseilles, France, 1940–41 and as Foreign Representative of French War Relief, of which Mr. Winthrop Aldrich was president, March to June 1940.

The paper by Mrs. Hill and that immediately following present a fairly recent picture of the food situation in a Nazi-dominated and occupied Europe. It is admitted that there are many difficulties in obtaining a true picture of the situation now current as the JOURNAL *goes to press (August 10). That the picture will be darker, indeed, when this issue comes off the press, there can be little doubt. In the light of this knowledge, the conservation of our own rich food resources, which in time may succor a starving Europe, should be a solemn obligation of all Americans, in particular the readers of this* JOURNAL.

IT IS slightly over two years since France fell. What has happened to her since then? It is extremely difficult to give an accurate picture of the effect of food shortages in France, owing to the lack of scientific study of conditions and vital statistics such as are compiled in the United States by insurance companies. In fact, only from a very few localities are any statistics now available and these are recorded at irregular intervals.

Even before the Armistice, foods were rationed but it was possible to find supplies and unrationed foods. Since that time rations have been gradually reduced and unrationed foods are so very scarce that it would seem the limit of endurance has been reached and that the cleverest use of replacement foods cannot suffice to meet the needs.

On examining the rations in the occupied area we find that in April 1942 the allowances amounted to 1356 calories per day for infants, 1560 for children 3 to 6 years, 1418 for children 6 to 12 years, 1536 for adolescents, 1116 for adults, 983 for aged people, 1642 for pregnant women, and 2999 for nursing mothers. Meat rations per week were 180 gm.; and cheese, 50 gm. The following foods were rationed by the month in these amounts: sugar, 1000 gm. for infants, 500 for adults, and 1500 for nursing mothers; rice, 200 to 300 gm. for children and nursing mothers, none for adults; *pâtes* (noodles, macaroni, etc.), 500 gm.; dried vegetables, 500 gm. for all except nursing mothers who were allowed 1000 gm.; fats, 430 gm. for children and adults, 860 gm. for nursing mothers; jam, 250 to 1000 gm.; grape sugar, 300 gm. for infants, aged people, and nursing mothers, 500 for children and adults; chocolate, 125 gm. for infants, children, aged people, and nursing mothers; coffee mixture, 150 gm.; and "baby foods," 250 gm. for infants, aged people, and nursing mothers. During the season when green vegetables and fruits began to make their appearance, rations of dried vegetables and rice were cut.

The greatest lack in the diets, as shown by these ration rates, is in vitamins A and C. In some examinations made by specialists marked deficiencies in vitamins A and C have, in fact, become evident. The rationed food, too, cannot always be obtained.

[1] Mrs. Hill, now Vice-Chairman, Children's Committee of the Coordinating Council of French Relief Societies, Inc., 451 Madison Ave., New York, writes under date of August 29 that a letter from France, two months on the way, states that total calories for children and adolescents for May were reduced from April allowances, due to reduction of pâtes and dried vegetables and reduction of milk ration for children 3–6 years, even though since April 15 adolescents are entitled to a supplement of 10 gm. meat per week, and some new potatoes are allowed in all categories.

Eggs are practically unobtainable and the majority of the people in Marseilles had only one distribution of fish during the entire winter. As for milk, only children under 3 years, expectant and nursing mothers receive it.

There are special rations for those engaged in hard manual labor and for children 12 to 21, nursing mothers, and pregnant women. People on special diets are rationed accordingly, but if a quart of milk a day is allowed one must give up meat and bread. These restrictions apply to a nation whose population is estimated at approximately 42 million inhabitants, of whom 13 million are children and adolescents up to 19 years, 22½ million are adults from 20 to 60 years, and 6 million are over 60 years.

There are no accurate statistics for the unoccupied zone. The normal population is certainly increased by the refugees, the number of whom has never been published (Alsaciens, Lorrainers, who normally live in the occupied zone, etc.). Howard Kershner, director of The American Friends Service Committee in unoccupied France, who has recently returned, reports that "Approximately one-fourth of the children of unoccupied France are losing weight; about one-half are barely maintaining their weight, and the remainder are gaining less than normal. Children who should grow seven centimeters a year in height are gaining about three." I would like to quote another report on the state of nutrition of children in the unoccupied zone, from the Department of the Hérault. From Montpellier, which can be taken as an example, the authorities reported some months ago as follows: "Sixty-two thousand children have been examined by school physicians. Undernourishment is frequent, with loss of weight and tendency to faint during classes. This is true for the villages of the wine region as well as for the city itself. One-third of the children have lost 2 to 3 kilos. Some of them, between 10 and 14 years of age, have lost up to 6.2 kilos. True avitaminosis is rare: 6 out of 200 children. The most common finding is loss of weight, due exclusively to insufficient amount of food. The Quakers have organized supplementary meals for school-children. They went after their food like starving animals. In one school, 25 undernourished children gained up to 2 kilos. The same is true in other centers for distribution and in other regions: *e.g.* Alpes Maritimes, Tarn, Vaucluse."

The same authorities reported later that: "The situation is now aggravated. Out of the last 600 children examined, 10 per cent only showed no trace of avitaminosis A; 40 per cent showed slight, 50 per cent severe 'carences' [sic]."

Mountainous and semi-mountainous regions fare better than the lowlands and cities, where the situation is becoming more and more serious. Babies can not attain a normal growth. Children appear small for their age, and show less resistance to infectious diseases. Distended stomachs, suppurating glands, fainting, nosebleeds, inability to remember lessons from one day to another are some of the most frequent symptoms.

In the adolescent category deficiencies are becoming apparent in all classes of society. There is a marked decrease in the capacity for physical and intellectual work. Masters of the higher classes of the lycées and university courses are seriously concerned as to the effects which will be produced by a further decrease in the rations. Examinations show that adults, on the other hand, have resisted more successfully. Those who had lost weight to an extreme degree—65 to 100 pounds or more—are slowly becoming habituated to the new conditions of life. The majority of cases appear to have been stabilized after using up their reserves. Old people, the tubercular and the insane must be excepted, and invalids are being wiped out with frightening rapidity. Beds for the tubercular are more and more in demand.

A résumé in the French magazine *Voici* for January 1942 shows that the maximum rations in France are in all cases less than 50 per cent and for eggs, less than 8 per cent of the minimum requirements according to U. S. standards, even assuming that the rationed foods were obtainable. Fresh fruits and vegetables, according to this report, are not rationed but are not to be found, and the stated allotments of milk and eggs are unobtainable. "Thus, even in cases where the rations cited are on the market, and where the individual has enough money to buy them, the total is far from meeting normal human needs." The problem of paying for even such limited rations, complicated by unemployment and low wage scales, is the subject of more extended study in the article cited, which tabulates budgets and incomes on a monthly basis. It makes clear that the ordinary Frenchman has a purchasing power equal to only about half the official rations, which in themselves rarely reach one-half of the vital minimum. Thus the individual is reduced to no more than a quarter of the nourishment considered necessary to sustain life.

The condition of persons in concentration camps is pitiful. Again let me quote Howard Kershner: "Another service that we are trying to render to France is in the concentration camps, the internment camps, where people are literally starving to death, not because the generous French are unwilling to feed them. France appropriates 11 francs 50 [centimes] per day per person to feed those folks in the internment camps, but the commandants simply cannot find the food. You may go to the market early in the morning and buy a few carrots or a head of cabbage or some artichokes or something, enough maybe to keep one family from starving, but you can't go to any market anywhere and buy enough to make any impression for 2000 or 3000 people at one time. So it is impossible for the generous French

authorities to find the food that they have the money to pay for. I have seen men in these internment camps, full-grown men, weighing as little as 75 and 80 pounds, who are so weak from starvation that they cannot get up, and if they are able to walk around a little, they can't rise when they fall. Most of those 7000 people that we have been feeding all fall and winter and spring in those camps would be dead today if it wasn't for the little bit of food that we have given to them. Our supplies, if we are unable to get more, will last only a few weeks."

Anemia has greatly increased. One recognizes it in the strange pallor of those one meets, and the increasing number of blood tests made in laboratories bear out this statement. You may ask "Where has all the food of such a rich country gone?" We will pass over the food it takes to feed an army of occupation of two million men (Armistice requirements) and a population greatly increased by refugees, to actual farming conditions. Thérèse Bonney, writing for *Collier's*, states that in 1940 the invasion came at the height of the harvest season, and farm workers abandoned or were unable to harvest their crops. There was a loss of 45 per cent in the 1940 harvest, a 25 per cent decrease in dairy products, a 50 per cent decrease in the potato crop, a 30 per cent drop in the meat supply. Lack of fertilizer and seed accounts in part for the further reduction of the 1941 harvest. Of the two million French prisoners, 1,200,000 were farm workers, so labor scarcity accounts partly for this decrease along with scarcity of farm animals; 250,000 horses had been killed, lost or requisitioned. The cattle supply had been utilized to a certain extent before the Armistice to feed the French army. The cows left behind when farmers fled south were not milked and were afflicted with a fever. Thousands died. Lack of food made it necessary to kill off many thousands of animals. Armistice demands were high. Lack of grain made the keeping of poultry farms and private hen-yards impossible. Before the war, 800 cows, 1418 hogs, 380 calves, 5000 sheep, and 123 horses were slaughtered per day in one of the leading cities. At the end of 1941, these figures had changed to 60, 250, 75, 650, and 410, respectively.

Imports of rice and other products from Indo-China, Madagascar, and other colonies and from African possessions are now largely cut off. It is said that the Armistice agreement cedes a large per cent of all such imports to Germany and Italy.

Restaurants are regulated as to what they can serve. Further quoting Thérèse Bonney, the following are two sample restaurant menus: (1) for hors d'oeuvre, a little lettuce and a slice of tomato without oil, a handful of beans without fat, half a boiled egg, and 10 strawberries or 1 small apricot; (2) tapioca consommé, spinach with a touch of margarine, a dozen snails without butter or garlic, and a handful of cherries.

Boiled rutabagas, dried octopus, dried salted fish are some of the foods served in season. Citrus fruits have disappeared. Carrots are scarce. Peaches and many other fruits cannot be transported, and lack of transportation facilities accounts for the difference in levels of supplies to a certain extent.

There are black markets where it is said that food is sold for astronomical prices—a ham at $75 to $100. But there are few purses which can indulge in black market prices, and in France there is a feeling that all classes must share alike.

Following is a quotation from a letter written by the Quaker Inspector of School Canteens, Mrs. Laura J. Loyson, which I am sure will interest those of you particularly interested in school feeding:

> All the Quaker food has now been distributed (May, 1942). The last of it came to the schools in driblets . . . sugar, jam, cocoa, tomato sauce. . . . Nothing substantial, but everything such a help and so appreciated. . . . It was like the afterglow when the sun has set and night is coming on—starless and with heavy clouds hanging low—and one is inevitably overtaken by the sadness of the hour. . . . Where will the food be coming from now for the children?
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> How good that jam was! It made a wonderful dessert! But it is all gone now and just remains a memory—a sweet memory!
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> Now the cocoa is to the fore and is greeted with enthusiasm by the children who soak their bread in it and find it delicious (their "war-bread"—I wonder how American children would like it?). As it is considered dessert they linger over it trying to make it last as long as possible, while the *cantinière*, granting herself a few moments' breathing space, looks on sympathetically; but presently has to shoo them off to make room for the next batch of children to be served. The other day several of the small girls flung themselves in the old *cantinière's* arms because the cocoa was so good, and kissed her.
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> The tomato sauce is a splendid addition to the food the municipality supplies to the *cantines*.
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> When the meal has been, on the whole, too scant, the children are given two lumps of sugar each. But this, though nourishing, . . . does not satisfy hunger in the same measure, does not "hold the stomach" as the French say, as does jam or cocoa. There is another inconvenience to this distribution of sugar—an unexpected inconvenience—which is that the children instead of eating it slip it into their pockets to take home, where "Mother" is so glad to get it for family use, for there are usually other children, babies, adolescents or old grandparents to be cared for, and rations are so short. In these hard times children learn to think of others. In this case, however, the teachers have to be severe and keep a sharp lookout. Some teachers pour a few drops of water on the sugar so the children have to eat it up quickly before it melts.
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> Of course it is perfectly understood that the Quakers are not supplying complete meals but only supplementing them. These supplements have proved so helpful that one wonders what would have become of the children without them. . . . And one cannot help querying with a sinking heart as to what will become of them when these last supplies have been completely exhausted.
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> The children admit on leaving table that they are still hungry; but there can be no second helpings now in spite of the longing glances of the children towards the pots and pans. . . . It is easy to realize that such meals are not answering the requirements of growing children, and you will not be surprised to hear that our *cantine* children are losing weight.

During January, February and March, while the Quaker dried vegetables lasted, the children had kept comparatively well. Now it is no longer the case. Several of the school doctors have told me how dismayed they are to see how the children are falling away. They are thin, weak, anemic, heading for rickets and consumption, and already falling ready prey to any passing contagious disease.

And the teachers tell me repeatedly that the pupils are incapable of making an intellectual effort. They have no memory. As one of the school principals expressed it: "They seem to be asleep!" Other principals are distressed, for here are the examinations for the *certificat d'étude* coming on next month, and how will the children pass it? More grievous still is the thought of what will become of these children—physically, nervously, mentally—if these conditions of life keep on much longer.

I fear you will consider this a sad letter. So it is. But do not think I am discouraged.

Now I must not forget to tell you of another last bright "afterglow"—the *milk*. All this last winter when I would pass through the classrooms or the *cantines*, the teachers would often ask me: "Will there be no more of that good American milk for the children?" And the children's heads would pop up while they listened eagerly to hear the answer. The answer was always "no" and all the little heads would go down again. They did love that milk, and it did them all such a lot of good. . . .

Well now, the last American Red Cross milk is to be given out, and part of it has been attributed to the Marseilles schools. This is a real joy and a blessing. Unfortunately there is not much of it for them.

There is only enough to be distributed to some 12 or 13 schools; and in these schools to be given solely on medical advice to the children that are suffering the most keenly from undernourishment. What a task it has been to choose them! The doctors admit that they do not know where to draw the line, for they are all undernourished. . . . It has been necessary to set a figure for each school, and say: just so many and no more . . . .

Well, the doctors and the nurses of the schools that have been selected to receive this milk have been at work designating the children and making out the lists of names. There will be about 1300 to 1400 in these schools that will be given a cup of milk at 4 o'clock for one month. Some of the doctors have suggested having these children weighed before and after to see if this small supplement will affect their weight. It is the opinion of Dr. Dufour (head of the Medical Service in Marseilles) that even this small amount given for so short a time will be beneficial.

While this sad little choice is being made, the other children come forward and ask eagerly: "May we not have some also?" And looking down (on what is often a small thin face), the answer is made as cheerfully as possible: "Why, no! *You* are *well*! The doctor has ordered it for the sick ones. You must be thankful that you don't need it!"

This small distribution of milk may seem a small thing to you—but I can assure you that it means much to these children—more than ice cream and cake and a birthday party mean to American children—for these children are hungry. They feel this distribution such an event that every school principal has invited me to come and see the children drink their milk.

The Quaker program, begun before the Armistice, was concerned particularly with the refugees from Alsace Lorraine until June 1940 and was continued after the Armistice to succor refugees of all nationalities. In September 1940 offices were opened in Marseilles and plans begun for a program of school feeding and milk distribution. The actual distribution was begun in December 1940 in the Department of which Marseilles is the chief city, with a supply of 50 tons of dry milk, an amount sufficient to give a pint of milk a day to 4000 babies for 70 days. Up to this time 80 per cent of mothers in Marseilles nursed their babies. With the cold of winter, lack of fuel, decreasing food supplies, and increasing poverty, many babies fell below normal in weight. By beginning the milk distribution at this moment, thousands of babies were saved. Weight curves were soon brought back to normal. However, the examining doctors on duty at the 60 baby clinics found that increasing numbers of mothers, themselves undernourished, could no longer nurse their babies. Besides distributing milk in 90 centers in Marseilles (baby clinics, maternity hospitals, children's hospitals) and in the Department, the Quakers allotted monthly supplies of supplementary food to over 1000 expectant and nursing mothers beginning in March of 1941. Present supplies guarantee this most valuable work for only a few months longer.

The service of giving supplementary food to convalescent children leaving hospitals, to sick and ailing children in the home, was begun in April 1941 and will continue for a few months only, unless new supplies can be found.

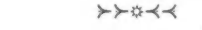
Distribution of food to the school canteens began in December 1940, reaching at first 40,000, then 50,000, finally 84,000 children in eleven most needy departments. This distribution, together with the milk for babies, has now come to a close, owing to lack of supplies. Milk, however, is available in Switzerland, but its purchase depends on licenses from our State Department, not readily granted.

The Toulouse Quaker center directs its own distribution, as does Perpignau, Montpellier, Montauban and other stations, but the supplies in hand will not last longer than January 1, 1943, if until then. Besides the Quaker relief, the American Red Cross has sent several shiploads of milk and one of flour. This was greatly appreciated and carried the country through a difficult moment, when grain supplies were depleted and the new harvest not yet ready.

Besides the relief work of these two groups, the Secours National, a French organization, has carried out large projects. It gives sums for food kitchens in the most needy centers. As many as 30,000 meals a day were served in Marseilles during winter months. This meal costs about 5 cents and consists of a vegetable stew, garnished with a portion of beef (90 grams) and gravy. No one family can purchase more than 4 portions per day. The food is eaten at home. Lines form hours before serving time. Often they are in the open, but in rain or shine the crowd waits patiently. The Secours National distributes tons of clothing annually, besides granting aid to organizations doing relief work such as vacation colonies, sanatoriums, etc. Funds are gathered by direct appeal, by posters, and by solicitation on the streets on certain days,

when young people, wearing an authorization badge, shake a coin box at passers-by to invite contributions.

But these methods, helpful as they are, remain but a drop in the bucket of the nation's needs. France, formerly a land of plenty, has been undergoing restrictions in food supplies over a long period. The children and adolescents are the worst sufferers from a slow, relentless starvation. Stunted, deformed bodies and minds can only be the results of the existing conditions in France, the enlightened minds of whose great men formerly led the world's culture.



Produce, Consume Protective Foods

Even twenty years ago dietitians and any one sufficiently interested to follow the scientific literature were advising people to build their daily menus around an adequate nucleus of the protective foods—milk and its products, eggs, leafy vegetables, fresh raw fruits and vegetables, meats and their equivalents in other foods of animal origin. At that time it was emphasized that highly refined cereal products and sugar were being consumed in such quantities as to constitute a menace to health. The older advice to those without technical knowledge of foods was to make a wise selection of common foods so as to insure that any nutrient which was deficient in one article in the diet would be supplied by another. The regular consumption of sufficient amounts of the protective foods, it was asserted, would provide these nutrients which were lacking in the fraction of our diets which were derived from refined products.

This advice is just as sound today as it ever was. It is not only sound but practical. We in America are still able to produce at appropriate cost an abundance of all the protective foods. To produce and consume them is the wisest policy from the standpoint both of safeguarding the nation's health and agriculture—the most basic of our industries.

Any one can realize the best health which his inheritance makes possible by taking a diet composed of a well-selected list of natural foods, prepared in ways which are familiar to all food cooks. Instead of so much emphasis on the deficiencies of this and that food, and of the daily requirements of this or that vitamin in units which are meaningless to the ordinary person, we should devote our efforts whole-heartedly to instructing every one that a well-selected diet of natural foods is wholly adequate for the maintenance of optimum health.—*McCollum, E. V.: What is the Right Diet? The New York Times Magazine, September 13, 1942.*

Food Distribution in Germany, Italy, and Occupied Europe[1]

IN THIS war Germany has been careful to perfect a system of food distribution which, by giving an impression of stability and foresight, will prevent the collapse of civilian morale in Germany through fear of insufficient or unfairly shared supplies, and, by the scientific and calculated allocation of rations, obtain the maximum returns in energy and strength for the war effort. To achieve this an elaborate system has been evolved which, until now, has worked fairly smoothly, in spite of its extreme complication. In peacetime the German people, of course, were used to what would seem to the democracies a Spartan fare, but their wartime diet has been kept at a fairly high standard of nutrition, while in the occupied and collaborating countries, although conditions often appall the humane observer, the people are still given enough food to enable them to make their allotted contribution to Hitler's war machine, and starvation is as yet only at the level of despair and resentment, not desperation and revolt.

The food position in occupied Europe is far less satisfactory than in Germany, both as regards supplies and distribution. The control of production is not nearly so complete, the machinery for distribution not nearly so efficient, and the rations as well as the quantities of unrationed foods available much lower than in the aggressor country. The Germans have consistently used the rest of Europe as a larder. This cannot be given too much emphasis. They have requisitioned, looted, stolen and obtained by the curious quasi-legal contrivances they cling to (probably in the subconscious hope of justifying themselves when they have been defeated), as much food as they possibly could. Not only that: Germany has planned to become the master race and it is part of this plan that the other peoples should be deprived of vitamins and other food essentials in order to lower their vitality. Germany recognizes no duty to provide for the conquered peoples; she is simply interested in preventing a collapse of the social and political structure where it would interfere with industrial exploitation. Thus the Germans have on rare occasions sent potatoes and grain to Belgium when the food situation, always very bad, became desperate, since Belgium's enforced contribution to German war industry is considerable. In Greece, on the other hand, where there is little to be gained by exploitation, the people are allowed to die of starvation, sometimes thousands in one day alone, and all the Germans do is to include extra food in the wages offered to Greek laborers if they will work.

[1] Based on releases of the British Press Service, received during July and August, 1942.

THE RATIONING SYSTEM IN GERMANY

Foodstuffs in Germany are divided into three categories. First, there are rationed foodstuffs, which cannot be obtained without coupons, either in shops, catering establishments or factory and office canteens, the only exception being that hotels and restaurants receive limited supplies of jam, sugar, eggs and coffee substitute. There are eight basic ration cards—for bread, meat and meat products, fats, jam, sugar, *Nährmittel* (cereals, cereal products and alimentary pastes), milk, and eggs. Consumers are divided into various groups, each with their separate scales of rations. Workers are graded and receive extra rations according to their occupations. Whole milk is reserved for children, pregnant and nursing mothers, invalids and workers in "unhealthy" occupations. Supplementary cards are given to the consumers entitled to extra rations and in addition there are leave cards, travel and restaurant stamps and cards for the local distribution of unrationed foods. Altogether there appear to be about one hundred different ration cards.

Ration cards are issued for twenty-eight-day periods and the Reich Food Minister announces the rations to be obtained in each new period. New cards are either distributed by the party official responsible for services in the block or area, or the local press notifies the public when cards must be collected, collection generally being staggered over two days. The cards are inscribed with reference numbers, names, dates, etc., and have either detachable coupons to be dispensed or stamped for purchases and order vouchers.

The regularly rationed foods are available in suf-

ficient quantities to enable consumers to get their full allowance, although the value of the coupons may be increased or decreased from time to time according to the supplies.

In the second group are foodstuffs which are available only occasionally, or seasonally. These include pulses, condensed milk, artificial honey (for adults), bean coffee, and tea, and are usually distributed on the spare coupon of the *Nährmittel* card.

Then there are certain unrationed foodstuffs such as fish, poultry, fruit and vegetables, skim milk, etc. Transport or other difficulties may cause shortages of these locally, and then they are subject to unofficial rationing. This happens mainly in large towns, and announcements of the issuance of special cards are published in the local press. In Berlin there have been limited distributions of chocolate, sweets, nuts, tinned and fresh fish, onions, fresh fruit, poultry and game, while Hamburg has similarly distributed fresh fish and fish products, horse flesh, fruit, poultry, game and sweets. The tendency is for more and more unrationed foodstuffs to be locally controlled and rationed in this way, and for such rationing to become of a more permanent nature.

Any system for the wartime distribution of food is based on the assumption that the government has full jurisdiction over all available supplies and also over production. This government control of food is achieved through control of those who produce the food and the local and provincial officials who collect and distribute it. However, corruption and black market offences among the party officials appear to be increasing.

An elaborate mechanism has been set up to ensure that the food produced by Germany and occupied territories is collected and distributed to the German populace and the conquered people in the proportions that Hitler considers appropriate. Under the Economic Control Decree (August 27, 1939) state and local food offices were established, whose duties cover two sections, A and B: the administration and control of foodstuff production; and the acquisition of supplies and their retail distribution.

Section A is run by the *Reichsnährstand*, now under the Ministry of Food and Agriculture. In order to secure effective control over production and marketing, all labor, fertilizer, motor fuel, machinery and other agricultural necessities are allocated, and local offices, which are in close touch with the farmers, are kept under the supervision of the state office. Section B is operated by officials of the ordinary local government service who estimate the food and fodder requirements of their own areas, regulate consumption, prepare household lists, distribute ration cards, divide consumers into appropriate groups, fix shopping hours, and supervise the orderly distribution of supplies.

In order to persuade farmers to contribute as much as possible toward the general supply, they have been given preferential treatment in the rationing of their produce. At first Hitler relied upon the patriotism of German poultry-keepers and their hens to provide enough to maintain the egg rations. Later, and for obvious reasons, regional associations were instructed to fix specific quantities to be delivered from their areas. Large poultry concerns and "unwilling" poultry-keepers were in some cases assessed separately, though generally an assessment was made for the whole area. Up to 60 eggs per hen or duck was demanded for the laying year, and the number has since been raised to 70.

The machinery for transferring each foodstuff from producer to consumer is operated by the national association for that foodstuff. The problem of fruit and vegetable control is particularly difficult because of the numberless small holdings contributing toward supplies, the very many varieties for which regulations must be made, and their perishable nature.

There is no regular or uniform ration of fresh or processed fruit and vegetables, with the exception of jam. In each town or village, fruit and vegetables which are scarce are informally rationed by retailers among their registered customers, while very scarce goods, such as oranges, are periodically distributed on a special ration card. Occasional distributions are made of canned fruit and vegetables, too, generally in large towns or industrial areas, as supplies are not sufficient to allow for regular rationing. The control scheme aims at compelling all growers in the chief producing areas to sell only through authorized channels at regulated prices. All the important fruit and vegetable-producing regions have been declared "closed production areas." This means that growers may sell their produce only through certain authorized centers called "area markets." These markets function as collecting, grading and packing stations and (in most cases, cooperative) selling agencies. They are not permitted to trade for their own benefit and have to dispose of their merchandise at prices conforming with the schedules, usually of maximum and minimum prices, laid down by the national association of the market garden produce industry. Exceptions are that producers may sell direct to residents in the same commune and to processors and wholesale distributors, subject to delivery permits. In the few remaining areas, independent marketing takes place through wholesale markets in the usual way.

Onions, cabbages and potatoes are subject to special control schemes of their own, and a further control is made in the case of imports, prices and quantities being carefully regulated to avoid discrimination against home markets. Jam-making, canning, quick-freezing and vegetable-drying are often emphasized in order to absorb sudden gluts of otherwise unsalable produce.

CONTROL OF DISTRIBUTION IN OCCUPIED COUNTRIES AND ITALY

The success of the German control and distribution schemes has been largely due to careful planning; the occupied territories, however, never know on what supplies they can count, and under what conditions they will have to work. They do not know how much of the food which they struggle to produce will be taken from them. If they are promised fertilizer or some other necessity in return for a part of their produce, they cannot rely upon obtaining it, and if they obtain it, they may find themselves forced to make yet further concessions in payment. They may suddenly find their horses commandeered or their men transferred to industry, or rolling stocks requisitioned so that transport is impossible. For example, the fishing industry in Norway has to reconcile five conflicting factors: the fishing catches have been much lower than normal; the population is short of other foods and could use more fish; the Germans expect increased deliveries of fish; fishing vessels are requisitioned; and the Germans themselves fish in Norwegian waters.

The Germans maintain their economic stranglehold on the rest of Europe in various ways. They do not take over the entire administration of the economic life of a conquered country, as this would require more administrative personnel than they could provide. After invasion, the military take command; they are accompanied by what may be called economic exploitation experts, who have been specially trained to exploit countries to Germany's advantage at short notice. The military requisition food and raw materials and anything else they want, while the economists decide how the resources of the country can best be used. The civil authorities are then expected to deal with the situation, to look after their citizens and satisfy the Germans at the same time. If German requirements are not satisfied, "Quislings" or Germans are put in key posts, and if the economic arrangements do not prove workable, the invaders may have them reorganized. But this is done in a piece-meal manner, one industry or trade being rationalized after another, as they happen to fall short of German standards, so that the structure grows up haphazardly and very unlike the German economic structure. The Germans tighten their control in various other ways; by financial penetration, by trade agreements, by sending Germans as technicians or administrators, and by offering supplies of raw materials, or withholding them and causing unemployment.

Food is rationed in all countries, usually according to the occupation of the consumer. Another way of restricting consumption is to restrict sales of rationed or unrationed foods to certain days. Nearly all foods come under the rationing schemes, and the few unrationed items such as fish and game are so hard to find except on the black market that they cannot be counted when considering food allowances per person. Fresh vegetables and fruit are an important exception and supplies of these are limited, being subject to seasonal variation, facilities and so on. The rations of all European countries with the exception of Denmark are lower than those in Germany. The diet of the urban populations everywhere is recognized as deficient, and in addition to special rations for heavy workers the authorities try to supplement the food allowances in other ways. There are soup kitchens and canteens in several countries, and in Norway school-children and factory workers are given free daily doses of halibut oil.

As in Germany, food production and marketing are regulated. Subsidies are paid to farmers to extend cultivation, production quotas are set, and marketing is centralized and controlled, all somewhat in the manner of the German system but without its carefully thought-out design and rigid enforcement. Restaurants and catering establishments are subject to restrictions and regulations. The local civil authorities are responsible for issuing ration books to the public and in some cases for the fixing of rations, and the peacetime trade and farming groups, hastily reorganized by the government to meet the emergency, or rationalized by a few key Germans, see to farm supplies, production and marketing. However, in none of the occupied countries have the authorities gained control of agricultural output, so they cannot ensure equal distribution of what food there is. Supplies of food are seriously short, transport facilities are very limited, and there are many additional difficulties. Besides the disorganization of the battle areas and destruction of agricultural machinery and supplies, there is the army of occupation to be fed, who always has first claim. There are officers' families to be fed, too, and German police, administrators, technicians, holiday makers and évacuées, even German sheep and livestock which are sent away to graze and brought back to be eaten by the Germans. Some notes on the methods used to control food production and supply in the various occupied countries are given below.

France. The French, at any rate in certain districts, are among the worst fed of any except the Greeks, although before the war France was largely self-supporting both in food and fodder, the chief deficiency, vegetable oils, being supplied by her colonies. The discrepancy between the potential fertility of the country and the present scarcity of food supplies is the result of many causes, of which war disturbance and destruction are perhaps the least important. This year, although the French are said to have been given complete control of wheat distribution, the Germans have asked for one-half million tons of wheat and will, no doubt, again expect a further contribution because of the wheat

deficit in Belgium. Further, the Germans now take 25 per cent of all oil seeds imported by France; and all the oranges coming from Spain to France go right on to Germany. In this way French children, who are suffering most, especially since they cannot eat the roots and leaves with which adults supplement their rations, are deprived of extra fats and fruit.

Belgium. Belgium is now under two administrations: the German military administration who, of course, has the final say, and the Belgian civil administration, headed in each department by a general secretary who is left to run the country subject to German requirements. At the beginning of each month the Department of Agriculture and Supplies decides on the food rations, although the people are often unable to obtain the quantities announced. The Belgian municipal authorities distribute cards with coupons which are periodically issued for rationed commodities. But all these precautions are largely defeated since the German military command must be given as many coupons as they choose to ask for, and moreover, according to reports received, the Germans have continued to requisition cattle, butter and potatoes in considerable quantities. The Germans interfere in other ways, too, taking over the very limited imports and diverting supplies intended for certain regions to industrial areas where the factories are supplying the German army with equipment.

Before the war Belgium relied to a very great extent on imports of food and fodder, and their level of food consumption now is one of the lowest in Europe, the fats ration being actually the lowest except for Finland. Since February even skim milk is rationed in the greater Brussels area. Belgium is also the first country to ration fresh fruit and vegetables. Soup kitchens and communal restaurants try to remedy as far as possible the serious lack of nutrition among industrial workers. They serve $1\frac{1}{4}$ million meals per day (the Belgian population is about $8\frac{1}{2}$ million) but the meals are not very substantial. Germany has had to supply Belgium with grain and certain other foodstuffs from time to time to prevent an internal collapse which at present would be to Germany's disadvantage.

Holland. Holland is the only country in which the food is fairly distributed. The rations are not high, especially for heavy workers, but the official allotments are obtainable and the children's rations sufficient as long as the milk supplies last. The amount of domestic grain produced in 1940–41 was of course insufficient but there were considerable stocks to draw on, and this meant that there could be no question of the peasants hoarding an important proportion of available supplies, as was the case last year in France, for instance. Meat supplies are very short, however, because the farmers refused to comply with enforced cattle deliveries.

Denmark. Denmark, once an exporter of agricultural products, is comparatively prosperous. Since Germany needs these products she has not hindered Denmark's agricultural policy, and she has been able to obtain considerable quantities, formerly sent to Great Britain, without seriously depriving the Danes. However, Denmark, while exporting large amounts of butter, cheese, eggs and bacon, has had to import large amounts of fodder. Now, instead of importing wheat for bread and fodder for livestock, the home-grown wheat and rye are used for bread and home-grown fodder for cattle. This, however, means an eventual reduction in livestock. In the last few months the Germans have been exerting great pressure to increase exports and there are signs that, instead of being allowed to keep what they want for themselves as hitherto, the Danes will be forced to give until it hurts.

Norway. Norway relied heavily on imports before the war; all her sugar, most cereals, as well as oil seeds and fodder, had to come from other countries. There were, however, some stocks, and fish and potatoes were plentiful. In spite of the quantities of fish and fish oil available here, where normal domestic consumption is only 10 per cent of the catch, the Germans must have taken more than could be spared, otherwise it would not have been necessary to reduce the fats ration in April of last year. Potatoes, too, are now short and locally rationed. Meat is very scarce, especially in the Oslo districts. The collection and distribution of food supplies come under government control regulations. Eggs, for instance, may be sold only through official centers, and pig owners must obtain slaughter permit cards before sending their pigs to market. There is now a national system of milk rationing. Children under 18 get generous allowances of whole milk. There are special food allowances for workers, and children are given free vitamins and supplementary meals at school.

Finland. Before the war Finland imported considerable quantities of bread grains, nearly all her sugar, some fats and a small amount of potatoes. She exported eggs and a little meat. Now, with nothing to export except possibly a very little fruit, she has an even greater need of imports. Even fish has had to be rationed. The fats ration is the lowest in the whole of occupied Europe, and the meat ration, which since May is something under 2 oz., is unobtainable. Finland is therefore dependent on imports from Germany, Denmark and Sweden, and she has received bread grains and fats from them, though transport difficulties made the rations very low indeed in the winter. Food control and distribution is under the Central League of Finnish Agricultural Societies which plans for the Ministry of Agriculture and sets up bodies such as the State Fruit Commission. It also makes arrangements by

means of which the leading meat firms and cooperatives purchase on behalf of their town. Children and heavy workers receive supplementary rations, and people engaged in agriculture receive very much more generous rations than others. Since these make up two-thirds of the population it means that the urban population is very poorly fed. Suffering is particularly acute in Helsinki, Tamper and the Karelian Isthmus. Among factors contributing to urban deficiencies are the peasant hoarding of grain and private purchases by German soldiers of food which they send home. In May 1942 public soup distributions began in the larger cities.

Poland. From 1940–41 the Germans worked on the reorganization and "modernization" of Polish farming and food production methods. They evicted the Poles from their farms and settled Germans from the Baltic States and South East Europe in their place. They also established state-controlled cooperative market organizations and offered subsidies for sugar, beet, and oil seed cultivation. Farming suffered badly from the invasion. The peasants were forced to desert their small farms and many never returned, but crops of grain, potatoes and sugar beet are now said to be almost normal. The appallingly small food supplies available for official rationing must therefore be due in part at least to bad distribution rather than low production. Food conditions are such that it is almost impossible to expect anyone to exist on the official allowances. Polish economic life is completely German-controlled, but the Germans are not concerned with the details of ensuring that the population is fed. Germans living in Poland naturally obtain the same rations as those in the Reich, but for the rest the rations, everywhere low, vary from town to town, while the Poles get less than anyone else in Europe, and the Polish Jews still less. Moreover, there appears to be no prospect of improvement.

The Protectorate. Since April, rations in the Protectorate are more or less the same as in Germany although the fats ration for normal consumers is lower. This is an indication of the extent to which Germany has managed to exploit Czech industry. Most reports suggest that with the exception of meat the rations are generally obtainable in full. Last year bread grains were rather short but sugar was plentiful and some was exported, including 3000 tons to Greece. Lately, however, the agricultural situation has caused anxiety and forced the authorities to take steps to improve their control over production and supplies. This is not made any easier by the presence of, according to some reports, over 2,000,000 Germans who must be fed, plus the fact that there were practically no reserves. There is also a great deal of sabotage. The extra 15 oz. cooking fat allowed to heavy workers and some other groups last November (involving about 2,000,000 persons and excluding Jews) appeared to be the result of strikes followed by an attempt to conciliate the rebellious workers.

Slovakia. Rationing started rather late in Slovakia. Bread was not rationed until June 1941, just before the harvest, thereby causing extensive hoarding. Meat was rationed last October, beef, pork and veal being rationed in towns of over 5000 population. Jam, flour and sugar are also rationed now, but not fats and potatoes.

South East Europe. The Hungarian, Rumanian, Yugoslavian and Bulgarian governments have received German "encouragement and guidance." They also hope to receive German certified seeds, fertilizers, agricultural machinery and competent technicians. This practical assistance has not, it seems, amounted to very much, but it has given Germany the right to "suggest" ration cuts and to expect large deliveries at the expense of local consumption.

Conditions in the Balkans make it impossible to effect rigid control schemes: the proportion of rural to urban population is far too high for the mobilization of supplies; although all these countries are normally exporters of food, the people are accustomed to a very low nutritional standard; and there is no administrative machinery to organize and distribute rations. Food control is therefore very fragmentary.

The Baltic States. The situation here is uncertain. The Germans evidently hope to gain control of farming, which was less disorganized by the war than in Russia because it was less mechanized. The aim is to feed the German soldiers on the Russian front on supplies from these areas, and it is reported that they have commandeered most of the fodder, grain and livestock of the Esthonian peasants. It has been made compulsory for potato stocks to be registered at collection centers for the German army. A few weeks ago an official rationing scheme was set up on the German model, though the rations were not, of course, so high.

Italy. Before the war the average Italian food consumption was probably the lowest in Europe and the food situation has deteriorated, particularly in the last twelve months. Since it is estimated that considerably less than half the pre-war fertilizer is now available, the failure of external sources of supplies has been accompanied by indifferent bread grain harvests in the last two years. The olive crops have not been good either. Unlike Germany, Italy did not at once institute a comprehensive rationing scheme. It was not until last October that bread rationing started, and meat quite recently. Practically all foods are now rationed and allotted as in Germany. Mussolini has had to ask Hitler for urgently-needed help, and it seems likely that Italy will depend more and more on Germany for food supplies.

REACTIONS TO THE CONTROL SYSTEM

Even with the control scheme there are many complaints of shortages in Germany, especially in the larger towns, and it is said that this is due not only to increased consumption and transport difficulties but to the control itself, involving as it does so much bureaucratic interference with the ordinary channels of distribution, so many forms to be filled out, and so many statistics to be compiled before allocation permits are issued, that the produce perishes while awaiting despatch. Nevertheless, the control system appears on the whole to be working effectively in Germany. When one considers the mentality of the average peasant farmer who has to find his way through the maze, and the satisfactory state, at any rate till quite recently, of food supplies in Germany, it becomes clear that a great administrative feat has been accomplished.

Reaction to food control and food shortages by people of the various occupied countries has taken the form of refusal to cooperate in production of food, and hoarding and smuggling, patronage of the black market, forgery of ration cards, etc., all of which contribute toward an even less efficient administration of food rationing and in turn work even greater hardships on the populace, so that the situation seems to be irremediable. All sorts of subterfuges are resorted to with resulting punishment by the German authorities out of all proportion to the offences committed. Excerpts from the press of the occupied countries and from subversive reports received in Britain tell a tragic story of German robbery, administrative weakness, peasant hoarding, black markets, and hungry, undernourished people.

The Unconquered People

In a booklet under the above title, released by the Office of War Information, Washington, there is an account of the resistance to Hitler in occupied countries, gleaned from fragments of stories that have reached the outside world. For example, it has been learned that "on the sides of buildings in occupied France portraits of pigs have appeared, with the caption: "Born in Germany, fattened in France, salted in the Channel, and roasted in England." Hundreds of clandestine printing presses hidden throughout occupied Europe turn out secret newspapers, bringing to their readers news of the outside world and stories forbidden by the Nazi press. Sabotage in France has resulted in transportation delays, poor work in factories turning out implements of war, inefficient tightening of screws and bolts on trucks and tractors, and damage to plants. Sacks containing wheat have been slashed so that when the much-needed grain has arrived in Germany it is spilled across the floor of the train. Hitler's answer to these and similar actions has, of course, been canceled food cards, slow starvation, exile, concentration camps, torture, and death. . . . "The entire male population of Televaag, Norway, (about 60) was sent to a concentration camp, and later shipped to Germany. All women and children were ordered out of town. Even animals were not spared the Nazi fury: cows, pigs, and sheep were sent to Bergen to be slaughtered."

Maintaining Sanitation in Serving Food Under Emergency Conditions[1]

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FOR the purposes of this discussion of the emergency handling of food, the term, "sanitation," may be defined as the practical application of public health safeguards rather than as, in the ordinary sense, the application of the principles of good housekeeping. Without discounting the value of ordinary cleanliness we wish to emphasize how much more is necessary to protect the public health. An illustration of this distinction may be drawn from the experience in the field of milk sanitation, which several decades ago consisted simply "in keeping things clean." When it was discovered that a cow's udder could become infected with human disease organisms such as those causing scarlet fever, and that under certain conditions such udders harbored bovine organisms capable of causing diseases such as undulant fever in humans, it became evident that no amount of cleanliness in handling milk from such udder-infected cows could make it safe for human consumption. This led to the process of milk pasteurization which has been responsible for most of the progress made in protecting the public against milk-borne diseases.

Before discussing the general principles of sanitation to be observed in handling food in emergencies, let us consider what such conditions are likely to be. Looking to England for an example, it is evident that small or large groups of people may be rendered homeless as a result of bombing and resultant fires.

It is also possible that similar conditions may arise because of fires resulting from sabotage by enemy agents. To meet such conditions it appears advisable to organize mobile units with all the equipment necessary for setting up kitchens in any available public building, or out-of-doors if necessary, and with staffs who not only have been trained in the art of cooking and the principles of nutrition but also have a working knowledge of sanitation.

It should be kept in mind that disease organisms generally come from human beings who have mild cases of disease, colds, sore throats or discharging wounds on the face, hands, or forearms or from persons who, although apparently healthy, are carriers of diseases such as typhoid and dysentery. Experience with group dinners prepared by volunteer workers has shown that previously unrecognized disease carriers may at times unwittingly cause outbreaks of disease. The general precautions that are taken in New York State for the detection of disease carriers and for the enforcement of rules against the handling of foods by such carriers have minimized the danger here. However, experience has shown that the system is not infallible. Furthermore, the record shows that persons who have unrecognized, mild cases of disease sometimes continue work while disease organisms are present in their body discharges. Therefore it is good policy to consider that every person handling foods or the utensils with which foods or the mouths of persons may come in contact, is potentially dangerous. Experience has shown that casual medical examinations are not sufficient protection and that a single laboratory examination of body discharges generally is not enough to determine whether persons are carriers. It is advisable, therefore, to send the names and addresses of volunteer food handlers to the office of the State Health Department in the district in which they reside with a request for advice as to whether any are known to be disease carriers.

In addition to this, it is advisable to have an understanding among workers that no one will work while he has a cold or a sore throat, or a wound on the fingers, hands, forearms or face, and to have enough reserve workers to carry on for those who may be kept from working on this account.

GENERAL PRECAUTIONS TO BE OBSERVED BY FOOD HANDLERS

Assuming that food handlers may have dangerous bacteria in their body discharges, notwithstanding reasonable precautions, volunteer workers should be taught the general principles of hygiene which are applicable to this work. A fundamental rule is to scrub the hands before starting work and after any interruption. Provide a basin, water, soap, brush

[1] Read before the New York State Dietetic Association, Utica, May 8, 1942.

and individual hand towels for this purpose. The fact that there are so many instances in which typhoid carriers have transferred organisms from their intestinal tracts to food they are handling shows the human tendency toward carelessness in this respect. After scrubbing hands preliminary to work, the worker should keep his clean hands away from his mouth, nose, or contact with other parts of the body while he is handling foods or utensils. It should not be necessary to warn workers against sampling foods with the mixing spoon and then placing it back in service for further mixing without being washed. No doubt many of you have observed how persons preparing salads will stop to lick excess salad dressing from their fingers and go right on handling ingredients without realizing that they have contributed bacteria from their mouths which may be harmful to persons eating the foods.

Those of you who have seen the picture of a sneeze made with the speed camera realize how thoroughly a sneeze sprays the air and anything within range with particles of saliva, containing mouth bacteria. If one shields a sneeze with the hand, that in turn may transfer the bacteria directly or indirectly to the food being handled. It would seem that the safest procedure is to direct sneezes toward the floor, assuming that workers will not pick up and use articles dropped on the floor.

Persons handling food should assume that their fingers may be the means of conveying dangerous bacteria even though they have been careful to avoid such contamination. Therefore workers should refrain from unnecessary handling of foods as well as surfaces with which foods or the lips of consumers may come in contact, such as the rims of glasses and cups, the bowls of spoons and the tines of forks.

CARE OF WATER AND FOODS

Other possible media for the transmission of disease are water, milk, milk products, ice cream, custard-filled pastries, meats, salads, and so on.

A good rule for securing safe water for the canteen is to use a municipal water supply. All such supplies are under supervision of the state and local health authorities. If the community in which the emergency canteen is started has been damaged recently, by bombing or otherwise, it will be advisable to telephone the local health officer and inquire about the safety of the water supply. All surface water supplies such as lakes, ponds and streams are generally polluted. Wells and springs should be considered questionable until proved to be safe. When it is necessary to use water of unknown safety it may be made safe either by boiling or treating with chlorine. The use of chlorine is the simpler procedure. The State Department of Health has a circular (1) available giving exact instructions for chlorinating small quantities of water.

The record of milk-borne outbreaks of disease shows that raw milk almost invariably is the cause of such outbreaks. Scarlet fever, septic sore throat, undulant fever and typhoid fever are among the diseases spread through raw milk. Pasteurization offers effective protection against milk-borne disease. Canteen workers should make sure that only pasteurized milk, cream, and milk products are used and that ice cream is made from pasteurized mix. Under the writer's direction, plans are now being made for maintaining the operation of milk pasteurizing plants in New York State during war emergencies and for mutual aid between plants. In the event that conditions should be so difficult as to make it impossible to pasteurize milk prior to bottling, milk bottle collars are available throughout the state for use in warning consumers to boil the milk before using. Instructions also can be obtained from the State Department of Health (2) for the pasteurization of milk in small quantities. It should be remembered that raw cream and other products made from raw milk are also good media for transmitting disease organisms.

A recent investigation of an outbreak of scarlet fever among workers at a plant producing Cheddar cheese showed that a cow on one of the farms producing milk for the plant had a quarter infected with hemolytic streptococci of the type associated with scarlet fever and as a result some of these disease-producing organisms were incorporated in the cheese made from the raw milk. Hucker and Marquardt (3) have shown that such organisms can live in cheese for three months or more. Furthermore, there is a tendency to rush Cheddar cheese to the market after a few weeks of ripening. Some of the milder cheese is eaten within three months. In order to guard against cheese-borne disease, the best safeguard is to buy cheese known to be made from pasteurized milk. A secondary precaution is to buy sharp cheese, that is, cheese that has been ripened for a long period.

Ice cream is required to be made from pasteurized mix by regulation of the New York State Department of Agriculture and Markets. Commercial ice cream made by reliable concerns, therefore, may be considered a safe product. Home-made ice cream occasionally has been the cause of outbreaks of disease. An investigation of an outbreak of septic sore throat traced to home-made ice cream served at a church supper showed that bringing some of the ingredients to a boil and then adding cold raw milk or raw cream did not subject the milk or cream to a temperature sufficient to kill disease organisms. Bringing *all* of the mixed ingredients to a *rolling boil* would, however, be sufficient. The use of pasteurized milk and pasteurized cream in making ice cream offers good protection.

In preparing meats it should be remembered that

they may spread intestinal worms such as tapeworm. Pork and products containing pork, as is well known, may cause trichinosis in humans. Meats, particularly pork and pork products, should therefore be *very thoroughly* cooked to kill such organisms if present.

Spoiled foods may be the cause of food poisoning or of gastro-enteritis. The best protection is to keep all foods subject to spoilage, such as meats, salads and custard-filled pastries, in a refrigerator at 50°F. or less. Plan meals so that there will be little food left over. Place left-overs, immediately after cooling, in the refrigerator until needed. If refrigerators are not available, ice boxes may be improvised. However, use a thermometer to determine that a temperature of 50°F. or less is maintained in various parts of the food storage space. The idea that it is not necessary to keep so-called ready-to-eat smoked ham in the refrigerator is erroneous. This at least is true of ham cured by the newer and shorter processes. Outbreaks of gastro-enteritis have been traced to such ham stored at room temperatures in warm weather. Chicken and other meats used after standing at room temperature overnight or longer, similarly have been found to be sources of such infection. Salads, turkey and chicken stuffing, gravies, macaroni, spaghetti, and cream or custard-filled pastries also have been found to have caused outbreaks of gastro-enteritis. Custard-filled pastries which include cream puffs, éclairs and various kinds of so-called cream pies often have caused outbreaks of gastro-enteritis. A good rule is to eliminate such items from the menu, particularly in summer weather. It is possible to rebake such pastries (4) for 15 minutes at 420 to 428°F. and destroy toxin-producing organisms, but during such rebaking it is necessary to observe certain precautions to avoid scorching or drying up the pastries. More recently a method has been proposed for making custards without starch and eggs. It is claimed that this medium either does not favor the growth of the staphylococci which produce toxins or is not favorable to toxin production.

SANITIZATION OF EQUIPMENT

Emergency food handlers also should consider measures to prevent the dissemination of disease organisms from the mouth of one patron of the canteen to that of others. It is commonly believed that poorly washed and unsterilized dishes, glasses, forks and spoons may spread infections such as the common cold, influenza, trench mouth and other diseases.

Probably the most dangerous system that could be used in washing dishes is the so-called mess-kit system by which each person washes his own dishes in common tubs of wash and rinse water. This means that each contributes the organisms on his hands to a common pool of organisms—the wash and rinse waters in which every person's dishes are dipped. Furthermore, the operation is hurried and perfunctory. Usually no attempt is made to disinfect the dishes. Lynch and Cummings (5), in a large-scale experiment during the first World War, showed the incidence of influenza to be about five times as great among large groups of soldiers using the mess-kit method of washing, as compared with similar groups using dishes washed collectively and dipped in water at almost the boiling point.

Scraping of the dishes is an important preliminary to washing. The smaller the amount of food material left on the dishes, the less drain on the soap or washing compound. Our experiments as well as practical experience have shown that washing is an important step in the operation. That is, good washing and rinsing, in addition to removing grease and dirt, will mechanically remove most of the bacteria, otherwise left to be killed by disinfection.

For emergency dishwashing it is suggested that three ordinary galvanized iron laundry tubs be provided and used. Steel drums cut in half by acetylene torch, or wooden wine barrels cut in half will serve the purpose. The first tub which is to be used for washing should be about half filled with water as hot as the hands can stand, say 110 to 120°F. Household dishwashing soaps, soap chips or soap powders may be used. Dish-cloths or dish mops should be provided. The second tub should be about three-quarters filled with water at the same temperature as the wash water and used as a preliminary rinse to remove most of the dirty and soapy water. The third tub, likewise three-quarters filled, should be placed on an oil, gas, gasoline or other stove so that the water is kept as near the boiling point as possible.

The dishes taken from the rinse water should be stacked in a wire rack which will fit into the third tub. Bowls and cups should be placed sideways in order that the water may enter and leave readily when the rack is dipped into and removed from the boiling water. When the rack is filled it should be placed in the boiling water and left there while another rack is being filled. Then remove the first rack and insert the second. When removed from the hot water the dishes will dry quickly without toweling. The cleaned and disinfected dishes, of course, should not be handled any more than necessary and should be kept in a clean place. Drying dishes with a towel takes time and tends to add bacteria to dishes that have been properly disinfected. For this reason the use of towels is being discouraged. If conditions are such as to make it impossible to disinfect dishes by means of hot water it may be necessary to resort to the use of towels to dry the dishes and to use such chemical disinfectants as chlorine or high molecular alkyl-dimethyl-benzyl-ammonium chloride known commercially as "Roccol."

Racks for stacking dishes, like other metal equip-

ment, are difficult to secure in time of war. One worker reports making a rack out of one-quarter or one-half inch square mesh galvanized iron screen purchased at a local hardware store. If china dishes are used, racks or baskets should have wooden lining strips to prevent objectionable marking of the china.

The disposition of dish scrapings and other wastes may present a problem in emergencies. Covered cans, of course, should be provided for this garbage. If regular garbage-collecting facilities are not available it may be possible to dispose of some garbage by burning, but burying is more likely to prove satisfactory, especially since considerable wood, paper or other fuel is usually necessary for the first method. If buried, the garbage should always be covered with not less than four inches of sand or dirt.

Finally, the successful operation of an emergency canteen will depend upon having all needed equipment assembled in advance and in having an adequate corps of workers well trained in sanitation as in other lines. Practice meals served under emergency conditions will serve to train workers and point out deficiencies in equipment which might prove serious if met for the first time under the stress of a real emergency.

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Fat in the Diet

Fat is used biologically mainly as a source of energy and as a constituent of the body tissues. It has minor functions, such as carrying important accessory substances. Weight for weight, fat supplies about twice the energy of the other staple organic foods, carbohydrate and protein. It is an essential in the structure and functions of all tissues and especially of the brain and nerves. The natural fats contain many of the vitamins which are necessary for the growth, maintenance and well-being of animals and probably plants as well. Fats serve passively as heat insulation under the skin, as padding to keep the bodily organs and blood vessels and nerves in place, and for rounding out the angular contours of the bodily structure. They constitute the most important form of stored energy for tiding the animal over through periods of food scarcity and for transmitting to the offspring, as milk or egg, food material to serve until the young animal can forage for itself. Most fats are readily synthesized by animals from other foods but there are certain important exceptions, fatty acids, which must be supplied in the food and the lack of which produces the fat deficiency disease. Fat is thus an important source of energy both immediate and remote. As ordinarily used, mixed with considerable other food, it is completely and easily digested and used. When used alone or when it is the main food constituent of the diet, it is less well used and may cause important disturbances in the organism.—*Bloor, W. R.: Role of Fat in the Diet, J.A.M.A., 119: 1018, 1942.*

Whole Wheat and Enriched Breads[1]

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PROMOTION of the use of whole grain food products has long been considered a traditional function of nutritionists, some of whom have insisted that all breads and cereals in the diet be of the whole grain varieties, while others have taken the more reasonable attitude that at least half of the breadstuffs in the daily diet should consist of whole wheat or other dark breads. However, despite the intensity and duration of these educational efforts, we find that less than 2 per cent of the flour milled in this country is whole wheat. The consumption of whole wheat and rye breads, too, has shown no material increase in the last 25 years. It is estimated that not more than one-third of one per cent of the bread sold in the United States is 100 per cent or entire whole wheat, while only another 7 per cent consists of dark breads made from more or less equal mixtures of white and whole grain flours.

Real whole wheat bread is, of course, a nourishing, wholesome food for most persons, although the small amount which is available varies widely in actual nutritive content. While it is difficult to establish an average vitamin and mineral content for whole wheat breads, most of them are undeniably superior to plain white bread in the vitamins of the B complex and in iron. On the other hand, all whole wheat breads are inferior to white breads made with the customary milk solids, in their calcium content and calcium-phosphorus ratio, in the biological values of their proteins, in their ease of digestibility by the normal person, and in the assimilability of their nutrients. With the production of the new enriched white breads, containing vitamins and minerals natural to whole wheat, the gap between the nutritional values of whole wheat and white breads has been virtually closed. A standard enriched white bread is, furthermore, superior in nutritive properties to a dark bread made from a mixture of unenriched white and whole wheat flours.

Enriched bread has been characterized occasionally as an intermediate choice between plain white and whole wheat breads, but such allegations usually have been based on lack of information. That enriched bread is a satisfactory replacement for whole wheat is demonstrated by comparative analyses of the vitamin, mineral, and protein contents of various types of bread. It is also a fact that consumers will eat larger amounts of the more palatable white bread than whole wheat bread and for this reason, enriched white bread provides a more satisfactory medium for more adequate intake of easily assimilated nutrients.

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THE COMPOSITION OF WHOLE WHEAT BREAD

Wheat is a rich but highly variable source of the vitamins of the B complex, and of iron. It is also an excellent source of phosphorus but it is low in calcium and in vitamins other than those of the B-group and vitamin E.

The thiamin content of different wheats shows an extreme range of from 1 to 4 mg. per pound, although many wheats will come within the narrower range of from 1.5 to 3.0 mg. thiamin per pound (1). Spring wheats, in general, are higher in thiamin than winter wheats, and hard wheats are better sources of this vitamin than soft wheats.

The riboflavin content of wheat is also variable, although not within such extreme limits as in the case of thiamin. Most wheat contains from 0.4 to 0.6 mg. riboflavin per pound (2).

Niacin, the pellagra-preventive vitamin of the B complex, has been reported as ranging from 6 to 22 mg. per pound of wheat (3).

Iron represents about 0.0030 to 0.0050 per cent of whole wheat, or 13 to 22 mg. per pound of wheat. Even wider limits of iron in wheat have been reported and some investigators have stated that only 50 per cent of this iron is in a form available to the human organism. Others have reported that at least 81 per cent of the iron in wheat is in the form of nutritionally available iron (4).

From these facts it is obvious that the nutritive values of any 100 per cent whole wheat bread depend upon the actual vitamin and mineral content of the particular wheat from which such bread is prepared. The potential range of nutritive values of whole wheat breads is shown in table 1.

No arithmetical average is given for these constitu-

ents of whole wheat bread, because such an average is meaningless. The only way that the actual content of these nutrients in whole wheat bread can be ascertained is by analysis of the finished loaf, although reasonably accurate figures may be computed if the vitamin and iron contents of the flour are known. A recent report (5) of the Council on Foods and Nutrition of the American Medical Association states that the "average" composition of whole wheat flour includes 2.04 mg. thiamin, 1.13 mg. riboflavin, 12.3 mg. niacin, and 18 mg. iron per pound. Alleged "averages" for these nutrients in wheat and whole wheat bread are also presented in many textbooks.

Relatively few analyses of the vitamin content of whole wheat bread have been published. In tests on 31 samples of whole wheat flours and bread made from these flours, Sherwood *et al.* (1) have reported that the thiamin in the flour ranged from 1.90 to 2.53 mg. per pound, and that the whole wheat breads made from this flour averaged 1.35 mg. thiamin per pound, or about 60 per cent of the concentration of this vitamin in the flour.

TABLE 1

Vitamins and minerals in whole wheat breads

	MINIMUM	MAXIMUM
	mg./lb.	*mg./lb.*
Thiamin (B_1)	0.66	2.64
Riboflavin (B_2)	0.27	0.40
Niacin	6.00	15.00
Iron	9.00	15.00

TABLE 2

Actual composition of whole wheat breads

SAMPLE NO.	THIAMIN	NIACIN	IRON
	mg./lb.	*mg./lb.*	*mg./lb.*
1	1.20	13.9	11.2
2	1.15	17.4	9.0
3	1.01	14.5	9.1
4	0.95	13.7	10.3
5	1.09	13.5	10.0
6	1.30	13.3	11.9

Two samples of whole wheat bread analyzed by Schultz *et al.* (6) in 1939 gave 1.6 and 1.7 mg. thiamin per pound, while one sample has been reported by Melnick *et al.* (7) as having 1.97 mg. per pound.

Three samples of whole wheat bread tested in 1942 by one of the manufacturers of enriching ingredients gave figures of 1.05, 1.21, and 1.94 mg. thiamin per pound, while complete analyses of six samples of bread labeled as 100 per cent whole wheat, and purchased on the open market in 1942, gave the figures shown in table 2 on a 35 per cent moisture basis.

Andrews *et al.* (2) have reported that one sample of whole wheat bread made without milk solids contained 1.02 micrograms of riboflavin per gram fresh bread, or 0.46 mg. per pound.

Since non-fat milk solids, or dry skim milk, will average about 22 micrograms of riboflavin per gram, the use of such milk powder in bread-making obviously adds considerable amounts of this vitamin. These milk solids also contain thiamin, averaging about 3 micrograms per gram; niacin, averaging 18 micrograms per gram; and other vitamins of the B complex, such as pantothenic acid and pyridoxine (B_6). Dry skim milk is used liberally in making white bread commercially, but is not often included in whole wheat breads.

A sample of 100 per cent whole wheat bread has been reported by Teply *et al.* as having 13.08 mg. niacin per pound, but Thomas *et al.* report only 4.08 to 5.25 mg. (3).

THE COMPOSITION OF WHITE BREAD

Patent flour, the finest grade of refined white flour, generally contains about one-seventh of the thiamin, about one-third of the riboflavin, about one-sixth or one-seventh of the niacin, and about one-half of the pantothenic acid and the pyridoxine of whole wheat flour (1). This white flour has about one-quarter of the iron and calcium of whole wheat.

Plain white bread is a better source of vitamins than this, since only two-thirds of its volume is flour, the remainder consisting of milk solids, yeast, shortening, sugar, malt or malt extract, salt, dough conditioners, and water. Vitamins and minerals are contributed to white bread by the flour, milk solids, yeast, and malt, and sometimes by the shortening.

Unenriched white bread made with 6 per cent non-fat milk solids, on the basis of flour used, will usually have from 0.30 to 0.45 mg. thiamin per pound, 0.6 mg. riboflavin per pound, 3.0 to 5.7 mg. niacin per pound, at least 4.0 mg. iron per pound, and from 0.3 to 0.4 grams calcium per pound (8).

White bread or slightly darker bread made from flours of higher extraction, which contain more of the bran and embryo germ of the wheat, will be much higher in the vitamins of the B complex and in iron than bread made from patent flour representing 63 per cent extraction of the wheat. Thus, an 85 per cent extraction wheat flour would retain 70 per cent of the thiamin, while a straight flour of 76 per cent extraction would carry about 30 per cent of the thiamin of whole wheat (1).

An increase or decrease above or below 6 per cent of dry milk solids in white bread would, of course, cause a proportionate increase or decrease in the amount of riboflavin, calcium, and protein in the bread (9). Practically all commercial white bread, except the French and Italian varieties, is now made with 4 to 6 per cent non-fat milk solids.

THE COMPOSITION OF ENRICHED WHITE BREAD

Since the inception of the enriched bread program early in 1941, the standards for this product which have been followed by bakers are those originally suggested by the Committee on Food and Nutrition of the National Research Council. These standards, which have minimum and maximum allowances, are shown in table 3.

Comparison of these figures with those presented in tables 1 and 2 for whole wheat bread shows that the vitamins and minerals in this enriched white bread are, in general, within the range of these nutrients in whole wheat, and that the thiamin and riboflavin values are considerably above the minimum values for whole wheat. Riboflavin is not a required ingredient in enriched bread, but may be added or included as an optional ingredient.

At the August 1941 hearings on bread standards by the U. S. Food and Drug Administration, desirable changes in these standards were advocated by representatives of the Committee on Food and Nutrition of the National Research Council, the American Institute of Baking and other organizations, and by individual scientists. The proposed standards are shown in table 4.

TABLE 3

Original recommended standards for enriched bread

	MINIMUM	MAXIMUM
	mg./lb.	*mg./lb.*
Thiamin	1.0	2.0
Niacin	4.0	8.0
Iron	4.0	16.0
Riboflavin (an optional ingredient)	0.8	1.6

These standards are higher in all respects, except riboflavin, than the original recommended standards which have been followed. Since they provide for increased amounts of thiamin, niacin, and iron in enriched bread, the resulting product comes even more satisfactorily within the range of these nutrients in whole wheat bread.

One reason for the proposed increase in thiamin in enriched bread is to compensate for any loss of this vitamin during baking and toasting. There are no appreciable losses of riboflavin, niacin, or iron in the baking process, but some loss of thiamin may occur. Factors affecting thiamin losses in the making of bread include the time and temperature of baking, the acidity of the dough, and the amount and type of ventilation in the oven. Greater losses occur at high temperatures in doughs having comparatively low acidity. Under ordinary baking conditions, however, the loss of thiamin will average only about 15 per cent. In some instances the loss will be from 7 to 10 per cent, while under more adverse conditions it may rise as high as 25 to 35 per cent (7, 9). Most of this loss occurs in the crust and is compensated for by the amount of thiamin contributed to the loaf by the flour, yeast, and milk solids, the total thiamin from these sources alone being about 0.35 mg. per pound of bread. If, therefore, 1.1 mg. thiamin is incorporated in bread already having 0.35 mg., a 15 per cent loss in baking would still leave 1.23 mg. If toasting causes another 15 per cent loss, the toast consumed would still provide the eater with more than 1.0 mg. thiamin per pound of toasted bread.

Many analyses of enriched white bread have demonstrated, furthermore, that this product consistently shows a thiamin content in excess of 1.0 mg. per pound. Thus, only 2 of 20 enriched loaves tested by Melnick *et al.* (7) were slightly below this standard, and most had a much higher content of thiamin. According to Frey *et al.* (10), white bread made with 2 per cent standard enriched yeast and 6 per cent dry milk solids contains an average of 1.7 mg. thiamin per pound. The niacin content of enriched white bread has been reported as 6.72, 8.50, 9.69, and 9.96 mg. per pound (3).

TABLE 4

Proposed legal standards for enriched bread

	MINIMUM	MAXIMUM
	mg./lb.	*mg./lb.*
Thiamin	1.1	2.2
Niacin	10.0	20.0
Iron	8.0	16.0
Riboflavin	0.6	1.2

ENRICHED BREAD IN THE MODERN DIET

Bread and cereals now contribute about one-quarter of the calories in the American dietary. Since bread is a most economical source of necessary food energy, and also of body-building proteins of high biological value, leading authorities on nutrition are agreed that good bread may logically comprise 40 per cent of our calories. In this connection Sherman says (11): "It is for reasons of digestive comfort and nutritional well-being, as well as of pecuniary economy, that we suggest for breadstuffs (including cereal products generally) the relatively prominent place of something like two-fifths of the total calories of the diet." A similar recommendation has been made by Professor E. V. McCollum of Johns Hopkins University. This recommended increase in the consumption of enriched white bread appears to be justified now that it may be said to belong in the category of the so-called protective foods (12).

SUMMARY AND CONCLUSIONS

Efforts to promote a greater consumption of whole wheat bread have been unsuccessful, as shown by the

fact that today less than 2 per cent of the flour milled in this country is whole wheat flour. Not only is less than one-third of one per cent of the bread sold in the United States made from 100 per cent whole wheat, but there has been no material increase in its consumption during the past quarter of a century.

Whole wheat bread is a good but highly variable source of vitamins of the vitamin B complex and of iron. It is a poor source of calcium. The thiamin content of 100 per cent whole wheat bread may vary from an extreme low of 1 mg. per pound to an extreme high of 4 mg., or a range of 400 per cent.

Plain white bread, made with the customary milk solids, generally has about one-quarter the content of vitamins of the B complex found in whole wheat. It is a good source of calcium, and all of its nutrients are readily assimilated by the normal person.

Enriched white bread, made with milk, offers a uniformly potent source of thiamin, riboflavin, niacin, iron, and calcium and phosphorus in proper physiological ratio. The vitamins of the B complex and the iron in enriched bread are within the range of these nutrients in whole wheat.

Breadstuffs containing adequate vitamins and minerals may therefore comprise 40 per cent of the calories in the American dietary, since modern enriched bread can be said to belong in the category of the protective foods.

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Dietary Non-Essentials

The first rule in obtaining an optimal diet is to eliminate as far as possible all foods poor or low in vitamins and minerals. These foods are the highly refined flour and cereal products that have not been enriched with vitamins and minerals; sugar and sugar products and alcohol.

It is not sufficient to eliminate only unenriched white bread and cut down on the sugar in the coffee. It is equally important to eliminate the cocktail and reduce drastically the consumption of these products in pastries, candies, table spreads, alcoholic and carbonated beverages. The average six-ounce bottle of sweetened carbonated beverage contains two-thirds of an ounce of sugar. It is naive to think of one's self as virtuous or patriotic by omitting a lump of sugar in the coffee and taking the equivalent of four in each carbonated drink between meals.—*Jolliffe, N.: What is the Right Diet? The New York Times Magazine, September 13, 1942.*

Editorial

THE DETROIT MEETING

From information received as the October JOURNAL goes to press, this War Session, which is also the twenty-fifth anniversary of the founding of the Association, promises to be one of the most practically helpful meetings in the history of the Association. Representatives of federal government bureaus concerned with nutrition in the war effort have consented to appear, armed with last-minute information which returning delegates will be able to put to immediate use. Dietitians who are actively participating in the National Nutrition Program as this directly concerns the war effort in industry and elsewhere will also present their views for the benefit of those who are or will be doing similar work. A brief outline of the program, together with a partial list of speakers, appears under the news section of this JOURNAL.

In keeping with the spirit of a twenty-fifth anniversary, special attention will be paid to reunion gatherings. A list of charter members is being compiled and it is hoped that all charter members will send their names to the Chicago office, stating whether or not they plan to attend. Also, Army dietitians who served in World War I will receive special attention, and they are asked to bring their uniforms or other prize bits of memorabilia.

Complete details with regard to round-trip railroad fares to Detroit and hotel rates appeared on page 258 of the April JOURNAL. It is understood that that information is still current. In view of the travel conditions at present it is strongly urged that railroad reservations be made as far in advance as possible.

Winning S. Pendergast, Chairman of Hospitality for the Detroit meeting, and director of school lunchrooms, Board of Education, Detroit, extends the following hearty welcome to those who plan to attend the meeting:

Welcome to Detroit, where the twenty-fifth anniversary of the American Dietetic Association, founded during the stress of the first World War, is to be commemorated in the midst of a second world war. It is fitting that this important milestone in our history should be commemorated in Detroit. For here in the hub of the war effort, tools of war are rolling off assembly lines and on to boats, trains and planes, to hasten the day when our country shall have aided in finishing the job started twenty-five years ago.

Speaking of birthday anniversaries, if you hope to visit a war plant, or visit Canada, be sure to bring your birth certificate.

There are many things which we would like to do to make your visit to Detroit enjoyable that we will be unable to do. Bus trips are out and we will have to show you our city via the public transportation system. However, the Trips Committee will direct or guide you to Detroit's world-famous Greenfield Village and Museum, the interesting Zoo in its natural setting, the Art Center with its Library, the Institute of Fine Arts, and the beautiful new Rackam Foundation—one of the most eye-satisfying buildings in the world. If you have not seen the produce market of a big city in the early morning, an experience every dietitian enjoys, you should not miss the trip to the terminal. The Trips Committee will also be glad to arrange a visit to whatever size and type of hospital dietary department or school lunchroom interests you most.

There is little doubt but that this meeting will be different from most of our other conventions—smaller, more essentially practical, more informal, more economical—for thrift is to be one of our convention goals, even as it is becoming a personal aim.

But the hospitality of Detroit never wavers and a warm welcome awaits you all. We need an intensified esprit de corps, the inspiration of group action, even more than did the little group of pioneer dietitians who decided to meet and talk over their problems twenty-five years ago. Come to Detroit to the Convention!

"... AND GLADLY SERVE"

We have been told a number of times that more dietitians are needed for the Army. This need is growing as the Army grows, but we are apparently falling behind in meeting our quota. This lag is not unimportant, and its correction is the personal responsibility of each of us. We know that in a total war there can be no "letting someone else do it." We know, too, that women, having asked in the last few decades for the privileges of men and having received most of them, must logically accept new responsibilities, for with privilege comes obligation. It is our obligation now to aid in meeting the Army's need for dietitians—an obligation from which none can claim exemption.

In order to release recent graduates of approved hospital courses and other hospital dietitians of suitable age for Army service, those who are older must

do their part by carrying on in civilian hospitals. Every young hospital dietitian should be in readiness for Army service, although there are valid reasons, of course, why some are not able to serve. A few in this age group, for instance, are now in positions where they are of as much or more value to the war program than they could be in the Army. There are others, too, whose physical limitations preclude military service but do not necessarily lessen their usefulness in civilian hospitals.

There are no statistics immediately available as to the number of dietitians of suitable age for military service, but the sharp rise in membership in the American Dietetic Association would indicate that a very large proportion of its members are within the age limits for Army service. We know that the approved hospital courses have lately been graduating over four hundred dietitians a year, and that many other dietitians have gained hospital experience without having been student dietitians; it would seem, therefore, that the supply will go a long way toward meeting the demand when mobilization is fully effective. There is no immediate prospect that women will be drafted, but this fact, for those who fully sense their duty, only heightens the obligation to volunteer. We are given the privilege of choosing —and, let us repeat, *privilege begets obligation.*

Unfortunately, that obligation is not yet being fulfilled. "Too little and too late," apparently applies also to us. What are the reasons? It has been suggested that we are afraid the Army may not provide inner-spring mattresses—that our physical comfort may suffer. That comment does not come from the young dietitians (If it did, we would be as soft as the Germans say we are!) but other reasons given are almost as trivial.

We think we might not care for Army life! Is that important? Actually, most of the dietitians now in the Army make few complaints on this score. Others may say, Army service doesn't fit in with their life plans. That's quite true. War doesn't fit in with our scheme of things, nor would an epidemic of smallpox or plague. If the epidemic were here, we would have to set aside our chosen way of life until we had eradicated it. War is here, and we must put aside our life plans until we have overcome this evil. Neither does Army service fit in with the life plans of the young men in the armed forces. They had intended to be pediatricians or lawyers, farmers or teachers. It should be our pride to join them without being forced.

Others say, the Army is not offering dietitians the same protection in case of disability that it is offering soldiers and nurses. This, unfortunately, is true and is one of the very weighty reasons why military status is important for the Army dietitian.

We hear, too, that the Army is not giving its dietitians scope to serve most effectively. The truth of that statement is open to question, but did you ever hear of any newcomer establishing himself as a member of a team by shouting from the sidelines that he would play only if given the position he selects? The usual approach is to go in, in a minor position, and prove that one knows the game.

Another argument is that the dietitian in the Army may be out of a job after the war. Win or lose, none of us knows who may be out of a job after the war. When peace comes, we shall build the best world we can as quickly as we can, but nobody knows now what will be left with which to build anew. It is quite reasonable, however, to assume that Army dietitians may be the very people given preference for placement.

Meanwhile, there can be no retirement from the field for any of us able to carry on until the war is won, whether we had not planned to continue to work after marriage or whether we had set the age at which we would retire. All that matters now is that dietitians who can go into the Army must be free to do so, the rest must carry on until they come back—by managing with smaller staffs, by taking heavier assignments, by streamlining departments, and by shifting into nonprofessional hands any parts of the load which they can be trained to carry.

Each young dietitian must face the question: am I fit for Army service?

Each dietitian out of the field must ask herself: is it possible for me to go back to work?

Each department head must solve the poser: how shall I reorganize my department so that I may replace or release as many of my staff as possible?

The time for action is not next year—but now!

Flatulence

Flatulence is one of the commonest symptoms complained of by patients with indigestion or what they think is indigestion. Unfortunately, in many cases the cause cannot be determined. The first thing the physician must do when a patient complains of gas is to find out what he means. Does he mean that he is belching, does he bloat, does he feel as if gas was trapped in a segment of intestine, or does he pass excessive amounts of flatus? Curiously a patient may have any or all of these troubles and still not have real flatulent indigestion! The chronic belcher is swallowing air because he is nervous or frightened; the woman who bloats may have only an engioneurotic edema of her bowel; the man who feels as if he had gas in his stomach may have only a duodenal ulcer or constipation, and the man who is passing much flatus may only be chewing gum and swallowing much air with the saliva.—*Alvarez, W. C.: What Causes Flatulence? J. A. M. A., 120: 21, 1942.*

Current Comment

WORK SHEETS FOR STUDENT NURSES[1]

FRANCES GILLUM, M.S.

Everyone will agree that good meals are fundamental to good nursing. The student nurse should look upon the serving of good food, at the appropriate temperature, on a neatly arranged tray, as basic in effective nursing. This responsibility, as far as special diets are concerned, cannot be delegated, in entirety, to another group of workers. Student nurses should be given an opportunity for experience in the Main Kitchen, Diet Kitchen, Formulae Room, and other food units such as Serving Pantries and Cafeteria when these units are a part of the Dietary Department, as all this is a worthwhile part of her training. The dietitian should provide the student nurse with work sheets designed to aid in a better understanding of certain phases of diet therapy and cookery, so that she may better organize her time and be able to develop a harmonious relationship between the nursing staff and the Dietary Department.

In tables 1 and 2 appear work sheets which the writer has found useful. Each is designed to assist the student nurse in organizing her time and acquiring efficiency in food preparation. If the nurse is preparing diabetic diets it is obvious that she saves time if she weighs bread for all meals, wraps servings in waxed paper and sets these aside for dinner, supper, or breakfast, when she is on duty in the forenoon. In weighing milk her procedure should be to weigh all the milk that patients are to drink during the day before putting the milk in the ice box and proceeding to weigh other foods on the diets.

Student nurses can also participate in placing food

TABLE 1

Diabetic work sheet

FOOD	WT.	DINNER			SUPPER			9:00 P.M.			BREAKFAST		
		Wards		Priv.	Wards		Priv.	Wards		Priv.	Wards		Priv.
		A	B		A	B		A	B		A	B	
	gm.												
Roast lamb	60	1		4									
Roast lamb	90	2	3										
Sliced chicken	60				2	2	3						
Cottage cheese	30				1	1	1						
Sliced tomato	50	3	3	4									
Carrots	50	2	1	3									
Carrots	100	1	2	1									
Baked potato	100	3	3	4									
Pears	50	3	3	4									
Bread	30	2	1	2	2	1	2				2	3	1
Bread	20	1	2	2	1	2	2				1		3
Butter	10	1	3	1	1	1	2				2	2	3
Butter	5	2		3	2	2	2				1	1	1
Milk	200	2	2	2	3	3	1	1		2			
Milk	150	1	1	2			2						
Beets	50				3	3	4						
Cucumber	30				2	2	1						
Lettuce	20				1	1	4						
Celery curls	20						3						
Mashed potato	100				3	3	2						
Mayonnaise	10	2			1	1	2						
Peaches	75				2	2	2						
Peaches	50				1	1	2						
Orange juice	150										2	3	2
Orange juice	200										1		2
Cooked bacon	15										1	2	1
Dry cereal	10										2	3	3
Cream, 20%	20										1	1	2
Egg, soft-cooked											2	3	4

[1] This paper was prepared by Miss Gillum while a staff member of the Dietary Department, Grace Hospital, New Haven, Connecticut, and the therapeutic diet plans were those incorporated in Hospital Diet Special Lists in an article by Dorothy A. Milavetz in the *Connecticut State Medical Journal* for August and September 1941. *The Diet Manual* of the University Hospital, University of Michigan, Revised Edition, 1942, was also used as a reference.

on trays for the wards and private pavilion, so that when serving time comes there is no confusion in selecting foods to be served on the respective floors and in dividing the cold foods from those to be served hot.

Work sheets should indicate to the student the intent behind the direction for a specific method of preparation. "Bread without crusts" should be accompanied by sufficient instruction so that the nurse realizes the reason—that the patient is having difficulty in chewing, possibly for lack of teeth or because of an ill-fitting dental plate. Puréed vegetables and fruits should be thought of as part of a baby-soft diet, fourth-week Sippy, low-residue, convalescent ulcer or bland diet. Ice cream alone on a tray at supper in some hospitals would mean but one thing to the student nurse: a post-tonsillectomy or an adenoid operation. The term, "gruel," should suggest its use on all-liquid diets, *not* on clear-warm liquid diets and clear-liquid diets.

Table 2 is prepared for the student nurse who works with diets other than diabetic. Items such as "jelly" and "fruit juice with lactose" should suggest a high-caloric diet or high-carbohydrate diet; the use of lemon for salad dressing and skim milk for whole milk, low-fat diets.

The use of forms for case studies in the opinion of the writer is not a wise procedure. Forms can be too stereotyped to encourage intelligent action on the part of the nurse. Many students like to work out comparative food values to enable substitutions in the interest of variety for diabetic diets; others, in order to correlate physical improvement as indicated by laboratory findings following the use of diets low in protein and salt-free; while others wish to study problems which affect the nutrition of patients, interest in which is not likely to be stimulated when forms are used as the basis of a case study.

TABLE 2

Work sheet for non-weighed diets

FOOD	DIETS																TOTALS		
	Clear-liquid	All-liquid	Baby-soft	Mechanical-soft	Salt-poor	Low-protein	No condiments	High-carbohydrate	High-vitamin	Fat-free	1200-calorie	Convalescent ulcer	Fourth-week Sippy	Third-week Sippy	Tonsil-adenoid	Low-residue	Dinner	Supper	Breakfast
Bread without crusts				2													2	2	2
Butter, salt-free					5		3										8	8	8
Cereal, salt-free					5		2												7
Cereal, strained			2														2	2	2
Crackers, Graham			2														2		
Crackers, soda			2															2	
Egg, soft-cooked							2							1			1		2
Egg, poached, on toast													2				2		
Egg, poached, on milk toast (without crusts)															3		3		
Egg, scrambled (in double boiler)			2															2	
Fruit juice, 6 oz	5	5				1			5	2							18	18	10
Fruit juice, 6 oz. *plus* tbsp. lactose								4									4	4	4
Gruel		5																	5
Jello or gelatin	5	5	2														12		
Lemon for salad					5		2			2							9	9	
Meat, ground and creamed			2	2													4	2	
Milk, skim, 6 oz										2	1						3	3	3
Muffin, salt-free					5		2										7	7	
Muffin, salt-free, toasted					5		2												7
Potato, baked					2		1						2				5		
Potato, boiled																			
Potato, mashed				2	3		2	4		2		3				1		17	
Purée, fruit				2								3	2	1		1	9	9	9
Purée, vegetable			2	2								3				1	8	8	
Soup, cream, strained		5	2	2								3	2	1		1	16	16	
Sippy milk and cream													2	1			3	3	3

DRIED EGGS

The increased interest in dried foods has stimulated experimentation with these products. In the

U. S. Bureau of Home Economics 57 samples of dried egg powder were weighed and measured, according to a recent article by Dorothy E. Shank in the September *Journal of Home Economics*. Variations of from 5 to 9 gm. per tablespoon or 80 to 144 gm. per cup were found, also a wide variation in the palatability of the finished product. Samples from 58 drying plants were also tested for palatability. Each sample was scrambled according to a standardized procedure and judged according to a scale of flavor evaluation previously developed by a British panel. Of the samples tested, 45, or 78 per cent, were within the limits of fresh quality, 12 were within the limits of cooking quality, and only one sample was rated definitely unpleasant.

A study on "the effect of storage at various temperatures ranging from 9°F. to 110°F. for various lengths of time on the cooking quality and flavor of dried eggs" is in progress at the Bureau. Although data on this study have not yet been summarized, Miss Shank has recorded the following observations:

> These samples vary in their keeping ability. To measure their baking quality, emulsifying ability, coagulating power, and palatability, we prepare scrambled eggs, plain cake, popovers, mayonnaise, and baked custard. At the highest storage temperatures, the quality of the eggs deteriorates quickly. A noticeable difference in the finished products is found after one week of storage. The eggs retain good quality and flavor at the lower temperatures for several months. Just how long we do not yet know.
>
> As the eggs age they become dull and darker in color. When scrambled, the flavor is poor and the consistency grainy rather than creamy; mayonnaise will not emulsify; popovers have poor volume; baked custards are too soft and a thick crust of dull dark yellow color forms on the top. An "off" flavor becomes noticeable in all of the products, but shows up last in the cake. The volume of the cake does not become poor until the flavor is noticeably bad. The concentrated odor of egg should not be confused with "off" odors. So far, however, we have not discovered any correlation between odor and flavor. Sometimes eggs that have had a distinctly disagreeable odor have been scored as perfectly satisfactory when they have been prepared for eating. Perhaps some of the substance responsible for these odors volatilizes when heated.
>
> Until further information is available regarding methods of storage, we advise keeping dried eggs in a covered container in a cool or preferably cold place. To reconstitute dried whole egg, we use two tablespoons of egg and an equal amount of water as the equivalent of one fresh egg. However, in baked products dried egg can be satisfactorily used if added to the other dry ingredients.

In regard to dried soya products, Miss Shank reports that the Bureau of Home Economics has tested several hundred soup mixtures, has added soya flour and grits to meat cakes, meat croquettes, and meat loaf and has experimented briefly with the use of the grits in hot cereals and in products made with corn grits and meal. Though this work is decidedly in the experimental stage, it has advanced far enough to show the possibilities of soya products. The Bureau of Home Economics is also conducting palatability tests on dehydrated meats.

The packaging difficulties presented by dried eggs are set forth in the *Food Field Reporter* for August 17. According to this account, most firms processing dried eggs under Lend-Lease for consumption in Great Britain are shipping the product to firms in other lines of business for packaging. A peculiar and thus far unsolved problem that has developed is a wide variation in particle size. Although considerable study has been devoted to the subject, no satisfactory explanation has been found to date. The chief difficulty encountered has been in the filling of a standard 5-ounce container, supposed to hold the equivalent of one dozen shell eggs. When the finished product is just the right density, it packs in readily and the paperboard container is precisely the correct size to hold the required 5 ounces. But in numerous instances the particle size is such that two containers are needed to hold the required weight. One run of the product from a given plant will be just right as to bulk and weight, whereas another run from the same plant at another time will not meet the requirements.

Records are being kept by all dried egg producers as to certain details of processing, in an effort to trace the difficulties and correct them. Data requested include information about the type of drier, whether separate batches are run or operation is continuous, weather conditions, pressure of pump, volume of liquid eggs pumped per hour, etc. Around 80 plants, operated by 60 firms, are now in production, and it is estimated that the output this year will be about 240 million pounds.

YEAST AND ITS FOOD VALUE[1]

W. B. SARLES, PH.D.[2]

Approximately 230 million pounds of compressed yeast are produced annually in the United States (about 300 tons per day). Most of this yeast is used by the baking industry; a relatively small amount is used for home baking and for direct consumption as human food. In addition, large quantities of dried yeast are produced for home baking purposes and stock feed, and of dried brewers' yeast for human food. The industrial propagation of compressed or dried yeast is the primary function of several large corporations; brewers' yeast is a by-product of the brewing industry. Originally, all bakers' yeast was propagated on a grain wort medium, but today the majority of the yeast on the market has been grown on a medium containing molasses as the source of sugar. To the molasses are added ammonium salts, urea or some other organic substance which supplies readily available nitrogenous food for the yeast, phosphates and other necessary minerals, and small

[1] Excerpts from an address presented at a Refresher Course, the University of Wisconsin, February 7, 1942.

[2] Department of Agricultural Bacteriology, University of Wisconsin.

quantities of accessory growth-promoting substances. Such a medium is referred to as "molasses wort."

The food value of yeast is of both immediate and future significance in human and animal nutrition. Fresh, moist yeast contains about thirty per cent dry matter, approximately fifty per cent of which is protein, and the remainder a mixture of carbohydrates, fats and minerals; it is especially rich in phosphorus. But the chief interest in the dry matter of yeast lies in its content of vitamins and vitamin precursors.

Ordinary bakers' yeast grown on an enriched molasses medium contains approximately ten micrograms of thiamin per gram of dried yeast; the same yeast propagated on grain wort contains approximately thirty micrograms of thiamin per gram of dried yeast; brewers' yeast contains approximately sixty-five micrograms of thiamin per gram of dried yeast. The thiamin content of bakers' yeast can be increased to 700 to 800 micrograms per gram of dried yeast by feeding the yeast thiamin, or a mixture of thiazol and pyrimidine, or by mixing thiamin with the cells just before they are pressed into cakes.

The riboflavin content is known to vary between twenty and fifty micrograms per gram of dry yeast. The problem of selecting strains of yeast of high riboflavin content, or of increasing their riboflavin beyond the present known maximum, is being investigated.

The nicotinic acid content of unenriched yeast is known to vary between 100 and 350 micrograms per gram of dried yeast. Yeast is known to contain other vitamins of the B complex, such as pantothenic acid, but the quantities of these substances and the means for increasing their concentration in yeast have not as yet been worked out.

The content of ergosterol varies in different strains of yeast. Those high in ergosterol may be irradiated with ultraviolet light, which changes the ergosterol to calciferol, and are thus important sources of vitamin D. It is, of course, possible to add vitamin A or provitamin A to the finished yeast in order to increase its food value. Other additions can be made, but this is not common practice.

The production of high-vitamin yeast is of importance not solely because of its direct use as human or animal food. High-vitamin yeast can be used to enrich bread, and its use for this purpose has great potentialities.

Nutrition and the War

DUTIES OF AN ARMY DIETITIAN[1]

ELIZABETH M. MURRAY, B.S.[2]

The dietitian in the Army serves under the direction of the mess officer, who, in turn, is directly responsible to the commanding officer of the hospital. She supervises the preparation and service of all meals to tray and mess hall or dining room patients. The mess sergeant, who is also under the direction of the mess officer, has charge of the personnel.

At Fort Riley, there are two station hospitals—one at Camp Whitside, which takes care of the medical cases and has a 500-bed capacity, and a Surgical Annex at Fort Riley with a 200-bed capacity. The latter is a permanent structure, but the hospital at Camp Whitside is made up of wooden buildings of the barrack type connected by enclosed ramps.

There is a patients' mess and a detachment mess at each hospital. At present there are two mess officers, six dietitians, and five mess sergeants. There are now 600 patients. All of the cooks are soldiers, but the mess attendants ("kitchen police") are civilians.

The patients' mess serves two purposes: ambulatory patients are served in the mess hall, and food carts are sent out from the kitchen for patients on the wards. About one-third of the patients are able to go to the mess halls for their meals. There is cafeteria service for all, with the exception of crippled patients who are served by the mess attendants. A dietitian and a sergeant are assigned to each of the patients' messes. The dietitian directs the employees in all matters pertaining to food preparation and service, and provides the cooks with reliable recipes written in a manner they will understand.

The Army dietitian does not do the purchasing, but she requisitions most of the food through the mess office. All the messes at Fort Riley are on the Garrison Ration. The money value of the ration is allotted to the dietary department of the hospital, and with this the foodstuffs are purchased either from the quartermaster or from other sources when necessary.

The food carts are the Drinkwater metal box type. These are sent out from the patients' mess where all special diets are also prepared and dispatched in separate containers, marked with the patient's name or type of diet to avoid confusion in serving the trays on the wards. Each ward has a diet kitchen equipped with stove, refrigerator, and other facilities for preparing trays and serving meals. The trays are served by a nurse, or in a few instances by a ward attendant. The dietitian makes ward rounds during the serving periods, visiting patients on special diets and as many others as she possibly can. This gives her an opportunity to instruct the patient in regard to his diet. If a patient is required to follow a special diet after he leaves the hospital, the dietitian is asked to give him additional instruction. All diets are ordered by the physician and transmitted to the dietitian through the nurse.

[1] Read before the Kansas Dietetic Association, Topeka, March 20, 1942. Released for publication, Bureau of Public Relations, War Department, Washington.

[2] Head Dietitian, Station Hospital, Fort Riley, Kansas.

In the interests of Wartime Efficiency

"Every day at least one whole grain food,"—that is what the U. S. Nutrition Food Rules advise.

One of the most appetizing and convenient whole grain foods is Nabisco Shredded Wheat—made of 100% whole wheat and affording all of the plentiful energy of the pure whole grain. These crisp, toasted biscuits are recognized as a good source of natural Vitamin B_1, per ounce, *as eaten.*

The subtle, nut-like flavor of Nabisco Shredded Wheat wears well, day after day, and blends well with various fruits, enabling the fruit flavors to "come through." Combined with fruit and milk, this one-dish breakfast includes three of the recommended types of food, a source of essential vitamins and minerals.

In recommending this ideal whole grain food, it is well to specify the full name, "Nabisco Shredded Wheat," which is the original Niagara Falls product.

★

Baked by NABISCO
NATIONAL BISCUIT COMPANY

The detachment messes serve all of the enlisted personnel of the Medical Department, also a few civilian ward attendants, janitors, etc., who are employed at the hospital. At present they are serving a total of 350 men per meal. While a sergeant is in charge of the detachment messes, the menus are planned by a dietitian who also inspects these kitchens and checks twice daily on the preparation of the food.

The hospital menus are planned by the dietitians. The regular diets are heavier than those usually served in civilian hospitals, since the patients remain in the hospital until they are ready to return to duty. We are notified each month of the value of the ration, and this must be kept in mind in planning the menus.

Many of the cooks have not had a great deal of training, which must be taken into consideration in planning the menus and specifying the dishes which they are to prepare. We have selective menus for the women and officer patients at the Surgical Annex and these must be checked a day in advance. As a general rule none of the other patients are given a choice; however, their food preferences receive consideration in order to avoid waste and any cause for dissatisfaction.

In addition to the regular diet, the dietitians plan routine soft and convalescent ulcer menus, all on a weekly basis. These are distributed to the ward diet kitchens to be used as a guide in serving trays. Other special diets are planned about two days in advance, and typed copies are distributed to the ward each day.

The duties of an Army dietitian do not differ a great deal from those of a civilian hospital dietitian. Her work is mainly advisory. She must adjust herself, of course, to the conditions existing in her locality, and handle each situation to the best of her knowledge and ability.

WAR ON WASTE

ANNA M. McCUISH, B.S.

Since the advent of ceilings and priorities, the budget reminds us even more forcefully and insistently of the need to prevent waste in all directions, as part of our contribution to the war effort. To call attention to the crying need for decreasing waste, a "War on Waste" exhibit was presented, from a patriotic as well as an economical point of view, at Saint Mary's Hospital, Rochester, Minnesota.

The part of the exhibit for which the Department of Nutrition was responsible, under the motto "Waste and Victory Won't Mix," was presented in three main divisions entitled: "Don't Waste Your Health"; "Don't Waste Food"; and "Don't Waste Equipment." The use of flags, patriotic posters, and red, white and blue paper served to key the exhibit to the national war effort.

"Don't Waste Your Health," the key-note admonition of the display on good nutrition, seemed particularly timely because of the large number of selectees who had been rejected due to physical defects which conceivably might have been prevented through proper nutrition. Various posters depicting the adequate diet were attached to the wall, but the main portion of this division featured the poster, "Eat the Right Foods," published by the American Meat Institute, Chicago, which is based on the "Golden Rules of Nutrition" as suggested by the Committee on Food and Nutrition of the National Research Council. Meats and fish; a bowl of eggs; green, leafy and yellow vegetables; milk (fresh and canned) and cheese; oranges, tomatoes and grapefruit; potatoes, apples and bananas; bread and cereals; and fats and sweets, were pictured in color on this poster. Each picture carried an explanatory line indicating the recommended amount of these foods to be included in the diet each day.

Below the poster was a table bearing the placard "Victuals for Victory" and displaying actual foods represented in the poster. Paper streamers led from the pictures in the poster to the actual food groups. Copies of the leaflet, "Practical Nutrition,"[1] were placed on the table for distribution to onlookers.

The division entitled, "Don't Waste Food," was illustrated in several ways. "Cook For Victory" consisted of an exhibit of two dishes each of potatoes, carrots and spinach, showing the results of proper and improper methods of preparing vegetables. At the back of this display was a poster listing eight methods of conserving minerals and vitamins in cooking vegetables. "Use Every Crumb" featured a jar of crumbs, a basket of cookies made from crumbs, and a small poster listing various ways in which crumbs could be used to advantage. Another display urged emptying containers of canned foods completely in order to conserve small amounts of milk or an ounce or two of juice which would otherwise remain in the can and be wasted. One poster illustrated means of conserving meat; another translated pounds of edible waste into terms of meals for soldiers. All these were means of calling the attention of the public to the various ways in which food and food essentials, frequently wasted, may be saved.

"Don't Waste Equipment and Supplies" dealt with several types of equipment and supplies. For example, under a paper towel dispenser appeared a waste basket overflowing with partially used paper towels. The dispenser bore a reminder that it is necessary to use only one towel in drying the hands. To lend further emphasis, a problem was propounded as to the number of paper towels which could be saved during one day if each among the 700 hospital personnel would heed the foregoing reminder. Paper napkins were on display to suggest to the observer that these, too, should not be wasted.

[1] Prepared by the Medical Staff, E. R. Squibb & Sons, and available on application to this concern.

THIAMINE
RIBOFLAVIN
NICOTINIC ACID

and other known factors of the VITAMIN B COMPLEX

MEAD'S BREWERS YEAST TABLETS • Each Mead's Brewers Yeast Tablet contains not less than .06 mg. thiamine (vitamin B_1), .02 mg. riboflavin (vitamin G), and .15 mg. nicotinic acid, together with other factors of the vitamin B complex commonly occurring in brewers' yeast.

MEAD'S BREWERS YEAST POWDER • Each gram (½ teaspoon) supplies not less than .18 mg. thiamine, .06 mg. riboflavin, and .40 mg. nicotinic acid. For infants, Mead's Brewers Yeast Powder can be shaken up in a bottle. For the older child, the product may be shaken up with milk in an ordinary malted milk shaker, with or without cocoa.

Mead's Brewers Yeast is nonviable and is vacuum-packed to prevent oxidation. Packed in brown bottles and sealed cartons for greater protection.

MEAD JOHNSON & COMPANY, EVANSVILLE, INDIANA, U. S. A.

The exhibit entitled "Examples of Abused and Misused Equipment" was illustrated by stained and torn linen, chipped enamel utensils, burned and broken wooden and composition handles, bent silver, burned pans, and dented plate covers.

The need for careful handling of dishes was pointed out by means of a poster giving the number of pieces of glassware and dishes which were broken in the hospital during 1941. Broken china, glasses, pottery, and composition trays were displayed and the total cost of breakage for the year was stated. This last invariably elicited comment from the observers.

By means of attractive posters composed of sketches and verses, various means of conserving electricity, gas, refrigeration and water were presented. Cleaning supplies, particularly soap and scouring powder, were displayed as examples of other supplies so often used wastefully and indiscriminately.

The exhibit, which was open for three weeks, was viewed by many people—professional and non-professional, members of the hospital staff and outsiders. It is hoped that the exhibit served to remind all who viewed it of the many ways of preventing waste, and the need for doing so not only from the standpoint of the budget but as a patriotic duty.

STUDENT DIETITIANS AID NUTRITION PROGRAM

VIRGINIA MONAHAN, B.S.

An excellent opportunity to teach community nutrition presented itself to the student dietitians of Columbia-Presbyterian Medical Center due to the increased interest in the nutrition classes sponsored by the Red Cross and the Department of Health. Because of the demand for classes in this particular part of the city, staff dietitians were called upon repeatedly as teachers, and it was felt that students in training might carry part of the load through contributing to this excellent form of community service.

During the winter, the student dietitians had attended the Refresher Course sponsored by the Greater New York Dietetic Association where reports of current nutrition education programs were given by the staff members of the health centers in several sections of the city and outlines for teaching nutrition were discussed and methods of presentation described. Since most of the student dietitians at the Medical Center had had no teaching experience, it seemed wise for them to receive more detailed instruction in regard to the classes they were to teach; namely, the six-lesson course outlined by the Nutrition Committee of Greater New York and adopted by the Red Cross. This was the course selected for certain groups being formed at the Washington Heights-Riverside Health Center. A preparatory series of seminar classes was accordingly given to the student dietitians, directed by a teaching dietitian. One lesson was discussed at each seminar. The important facts to be emphasized in the lesson were decided in the light of the economic and social needs of the families in this section. Definitions were compiled and re-worded, and teaching points listed. Students were especially interested in the many illustrations, comparisons, and examples which might be used to explain the function of food factors in the body to groups unversed in physiology and chemistry. It was suggested that the blackboards in teaching rooms be used frequently in listing requirements for each food factor, as well as for a better understanding of the spelling of new and difficult words.

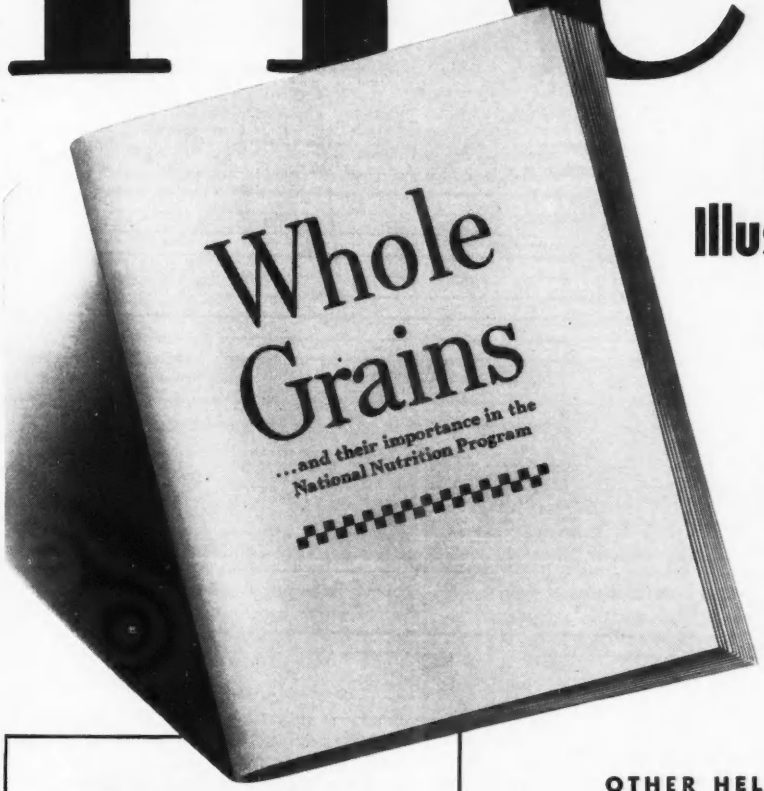
Many of the questions commonly asked by members of previous nutrition classes were discussed and sound answers formulated, particularly those pertaining to common food fallacies. Students were advised not to hesitate in saying that they did *not* know the answer to any question concerning which they were in doubt, but always to add that they would have the answer at the next class.

Before the students prepared the lesson plans for their own classes, they were asked to visit at least one class taught by a staff member. Some of the students, in addition, visited a class started earlier by another student. Each student outlined lesson plans for the three or four classes of the series she would teach, and these were discussed in individual conference with the teaching dietitian and her assistant. These conferences were particularly helpful since they ensured that the plans formulated would be suited to the student's personality and methods of teaching and speaking.

Various types of illustrative materials from governmental agencies and commercial companies were displayed and discussed by the students. Since members of the classes, especially women with families, were pleased to receive vitamin and mineral charts, recipe booklets and menu suggestions, students compiled a list of those they intended to obtain and use. A large collection of posters and charts designed to demonstrate and explain principles of good nutrition was available at the Medical Center Food Clinic for any staff or student dietitian to use in teaching her classes, thus obviating the need to make them up individually.

The first student-taught course was received with enthusiasm. About forty women who had received announcements enrolled, and their regular attendance, and their interest as evidenced by questions asked, were indications of the success of the training of the student teachers, as well as of the present trend toward a demand for more knowledge about nutrition on the part of the public. Since staff dietitians are frequently asked to teach nutrition classes in communities where they are working, the student dietitians felt that the seminars, individual conferences about teaching, and the opportunity to teach under supervision, comprised a valuable part

Free!



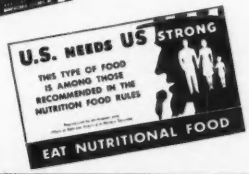
New 20-page Illustrated Textbook

Resume of scientific data on grain products, comparative nutritional value of whole grain products versus enriched or restored. Includes tables and charts helpful in teaching nutrition to students and homemakers. Comprehensive double-page chart of food nutrients, chief sources, requirements, functions. Two pages of tested recipes for appetizing, nutritious dishes.

WHOLE GRAIN FOODS FOR BETTER NUTRITION

A hot whole wheat cereal that needs no cooking—that's Instant Ralston. Rich in energy. Extra-rich in thiamin—because of added wheat germ. Just stir into boiling water or milk . . . and serve. Ralston Whole Wheat Cereal is the same—except it cooks in 5 minutes.

Ry-Krisp is a whole grain crisp bread—delicious, nourishing every-meal bread. Valuable in special diets.



OTHER HELPFUL MATERIAL FREE

For Home Economics Students: 6-page folder with resume of information on whole grain products, diagrams, recipes, chart of food nutrients.

For Homemakers: To be distributed by teachers of nutrition classes. Stresses need for better nutrition, value of whole grain products. Includes recipes, food nutrients chart, ideas for study groups.

Quantity Recipes: Tested recipes for low-cost custards, puddings and meat-stretching main dishes using whole grain cereals. Recipes to serve 6 or 50—on handy 4 x 6″ cards.

Allergy Diets: Lists allowed and forbidden foods for wheat-free, milk-free, egg-free diets. Also tested recipes for appetizing dishes made without wheat, milk, eggs.

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of their training, making them more competent and confident of their ability as teachers in community nutrition programs.

INDUSTRIAL FEEDING

Among recent publications of interest is a "Manual on Industrial Health for Defense," issued in June by the Division of Health and Social Services, Massachusetts Committee on Public Safety, Boston. Under the heading "Nutrition" the following suggestions, among others, are offered:

> It is the responsibility of management to provide clean, well-lighted cafeterias or lunchrooms in which appetizing, nutritious meals are served under the direction of a graduate dietitian, or a trained foods person with high standards. Where cafeterias or food conveyor service under management's control is impractical, Red Cross volunteer canteen workers should be approached in an effort to insure palatable, nutritious food for the workers. Meals should include plenty of milk and dairy products, enriched or whole wheat bread, and fresh fruits and vegetables. A glass of milk, preferably with a ripe banana, or certain fruit juices (pineapple, orange, grapefruit, and tomato) are recommended for between-meal snacks. Automatic milk dispensers are to be preferred to those for candy and soft drinks and should be encouraged in a well-rounded nutrition program for the worker.
>
> Nutrition education of the worker—both in plant and office—to make him desire optimum health and be willing to follow sound health rules, can be carried on by the management and the medical department through the plant paper, by health talks, by films such as the "Modest Miracle," by plant posters, and pamphlets such as "Get More Fun Out of Life," as well as by the medium of palatable, nutritious meals served in the cafeteria. Union organizations within the plant, when aroused to the need of nutrition education, can aid and abet these efforts in their own publications.
>
> Wives and mothers should be made to realize how vitally important to the nation's all-out war effort is the hot, nutritious breakfast with which they send their men off to the plant each day. Palatable, home-cooked, low-cost meals of optimum nutritional value should be encouraged, and expensive delicatessen, ready-cooked food buying should be discouraged. They should learn how to check their families' food habits for nutritional adequacy—and then find ways and means to encourage each member of the family so to select his noon meal that the total day's food supply will be adequate in every respect. Classes in nutrition, meal planning and palatable food preparation should be planned or encouraged for the mothers or wives of the workers.

Another item of interest is that the Health Division of the Massachusetts Committee on Public Safety has planned a Nutrition Guide course, to be given by a nutritionist, which combines elementary instruction in food values, food preparation, packing of lunch boxes and budgeting, in a brief, simple and practical manner. The Massachusetts State Department of Public Health has a nutritionist available for such consultation and service. Many large firms in Massachusetts are using the graduate home economics staff of their formerly active Home Service Departments to provide this help and information for the wives of their workers.

The July issue of *The Medical Clinics of North America* contains an article by Dr. William A. Sawyer, Medical Director, Eastman Kodak Company, entitled "Nutrition in Industry" in which the author makes the following statement concerning the need for trained personnel in this work:

> Strange to say, there are few accredited dietitians looking after the nutrition of employees in industry, though the Army, Navy, air lines, home bureaus, schools, colleges, hospitals, and welfare organizations have long been cognizant of their contribution to mankind. Industry, busy with production, has concerned itself primarily with brawn and brain, while . . . the employee has . . . been left to his own devices in getting his "three squares a day." The fact that he has done a pretty poor job of this, in light of our advancing knowledge, is just beginning to dawn on our consciousness. In addition, we are beginning to learn that his dietary inadequacies have affected his working efficiency, his absentee days, his incidence of accidents, and his general physical and mental well-being.
>
> Industry has a problem child on its hands. It is the problem of seeing that workers, upon whom so much depends for our country's war needs, are able to obtain right foods at least while on the job. You will recall the effort in England to provide for workers in their one meal on the job as much of the necessary daily requirements as possible. Certainly one step toward the best answer, and one which would alleviate most of the headaches for management, would be to have at least one person trained in home economics, preferably a dietitian, heading the cafeteria or canteen service, or at least available as a consultant. The advantages of such a person in industry are apparent. The dietitian should be made responsible for the entire service of food, including purchasing, planning, preparation, serving, and cost accounting. She should also "hire and fire" her own employees and outline their working schedules. Her food budget should be flexible enough to allow for a rise in food costs and the necessary price adjustments.
>
> With a trained person heading the industrial cafeteria, food will be more wisely purchased and the charge to the employee less. Standardized recipes will be used in food preparation and menus planned that will be nourishing and adequate and at the lowest possible cost. Offering the employees a complete plate lunch is the best method of selling good nutrition. This should include a meat or alternative, potato and vegetable, beverage, bread, butter, and dessert. Cafeterias that offer a hot plate lunch of this type at 25 or 30 cents usually do an excellent business. The company may lose a few dollars, but they are repaid in employee satisfaction and better nutrition.

LUNCHES FOR WORKERS IN DEFENSE INDUSTRIES

The importance of adequate lunches for workers is stressed in current releases from the Office of Defense Health and Welfare Services. Over the signature of Dr. Helen S. Mitchell, principal nutritionist, attention is called to the circular distributed by the General Electric Company, Bridgeport, Connecticut, entitled "Pack A Lunch That Packs A Punch," copies of which may be obtained upon application to Mr. Holmes Brown of the foregoing company.

Another circular entitled "Pack A Lunch A Man Can Work On," copies of which may be obtained upon application to Betty Stafford, Bridgeport Gas

Commando raids are dramatic and do their share in helping us win the war. Less spectacular, but equally important to Victory, is the role of nutrition in building a strong hard-hitting America.

COCOMALT, the enriched food drink, is doing its part in the all-out effort toward better states of nutrition. For, COCOMALT contains vitamins A, B_1, D and the minerals calcium, phosphorus and iron . . . all essential factors in well-balanced diets.

More and more physicians are recommending this delicious food drink for the entire family. The rich, full flavor of COCOMALT, either hot or cold in milk, is a delightful drink for those who will not ordinarily drink milk alone.

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ENRICHED FOOD DRINK

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Light Company, Bridgeport, Connecticut, outlines a "5-star lunch" and gives concise and helpful information concerning the selection and preparation of foods suitable for summer and winter lunches for the industrial worker. Bridgeport has set up three nutrition centers where the busy housewife can get helpful information on feeding the family. The circular states that "a trained home economist will gladly help you analyze the food needs of your family and plan nutritious as well as appetizing meals."

Another enclosure in the same mailing which nicely supplements the above-mentioned circulars is the revised edition of the leaflet, "Feeding A Family At Low Cost," copies of which may be obtained from the Evaporated Milk Association, 307 North Michigan Ave., Chicago. This follows the official food guide and the content is easily understood as well as being authoritative and directly practical.

A folder distributed by the Stephen Daye Press, Brattleboro, Vermont, was prepared by Ernestine Perry under the title "Eat To Win." It graphically depicts the essential foods to eat every day and illustrates the effects of the "lunch box lag" and that of the "packed pep lunch." Menus for the latter are included. The front of the folder, in red, white and blue, carries out the same idea by means of sketches of workers in various activities in harmony with the war effort. These are available at $27.50 per hundred or $2\frac{3}{4}$ cents each. Special imprints carrying the name of any organization, business or industry wishing to distribute the folder may be obtained at $3.25 per imprint plus an additional charge of $2 per thousand for printing. This is a forerunner of Mrs. Perry's book, *Eat To Win*, which was scheduled for publication in September.

ITALIAN FOOD PATTERNS

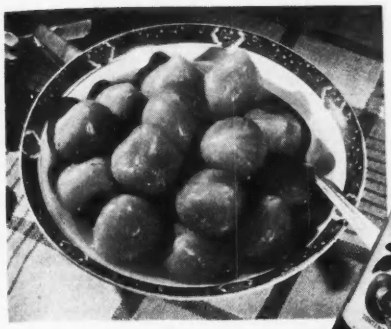
"The American food pattern is in fact a composite and a compromise among the different sub-cultural patterns, which still survive with varying degrees of intensity in localized areas. . . . Nutrition education to be most effective, emergency feeding to be most reassuring, evacuation set-ups to maintain the best morale, must be oriented to the special emphases of these divergent food patterns. This is true not only for the content of the food, not only for the rapport which the nutritionist can establish by knowing the name and method of preparation of local and national dishes, but also for the attitudes towards food." This is a statement from the preface to the first of a series of memoranda which the Committee on Food Habits of the National Research Council plans to prepare on different food patterns in this country in an attempt to "provide the sort of background which will be useful to all of those who are charged with the task of communicating with or planning for a given group of people in matters of food." This first memorandum, entitled "Italian Food Patterns and Their Relationship to Wartime Problems of Food and Nutrition,"[1] was developed by Dr. Natalie F. Joffe from a longer unpublished study by Genoeffa Nizzardini, and on the basis of the published literature and special interviews with experts.

According to the memorandum, the traditional foods of the Italian background group measure up to optimal requirements in many respects. "When an Italian housewife has sufficient money and liberty of choice in her shopping, she feeds her family very well, the most conspicuous deficiency in her larder being milk. However, it may be compensated for by the extensive use of cheese and leafy green vegetables. When she has access to them, she will prefer to buy many foods imported from Italy. It is obvious that most of these imports are no longer available, so adequate as well as acceptable substitutes must be devised. In order to do this, as well as to teach Italian women the newest knowledge of nutrition, it is necessary to furnish them with the means of making the transition in terms compatible with their ingrained habits."

Nutrition education, naturally, is aimed largely at Italian women, although Italian men have a lively interest in food, and many of them know a good deal about it, are good cooks and better critics. For these reasons and because of their place of authority within the home their interests should be enlisted so that they may serve to reinforce the knowledge gained by their wives from other sources. In order to reach all Italian women, every available means must be employed. These include the radio, especially the Italian language stations; the foreign language press; visual education, including use of brightly colored pictures; nutrition education of children in the schools, particularly the younger children whose food needs get attention at home and high school girls who assume many of the tasks of the household, including the family marketing. Parent-teacher associations and settlement houses are excellent institutional agencies for this work, provided the Italian women can be persuaded to attend. Churches, and baby health stations and clinics may also serve as centers for the promotion of better eating habits, depending on the personality of the leaders.

Some very helpful suggestions, based on an understanding of the Italian food patterns and habits of thinking, are offered in the memorandum. For example, it is stated that Italians think of food in terms of specific values, and nutrition education should therefore be phrased in these terms wherever pos-

[1] Copies of this first memorandum may be secured by writing to the Committee on Food Habits, National Research Council, 2101 Constitution Avenue, Washington. Three other reports of this Committee: "Some Aspects of the Work of the Committee on Food Habits," "The Relative Effectiveness of a Lecture Method and a Method of Group Decision for Changing Food Habits," and "A Group Test for Determining the Anchorage Points of Food Habits" may also be obtained from the same address.



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Showing recipes, food value tables, and complete list of Cellu Foods for the diabetic.

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A definite aid to convalescing appetites, an important War Conservation measure, and a time-saver in Hospital Luncheon Tray Service—these advantages make Milapaco Lace Paper Tray Covers highly profitable in the leading Hospitals in the country. Their original beauty of design lends tempting new appeal to daily luncheons. They save linen and laundering expense, speed up your kitchen service—offer many suggestions for hospital room decoration, too.

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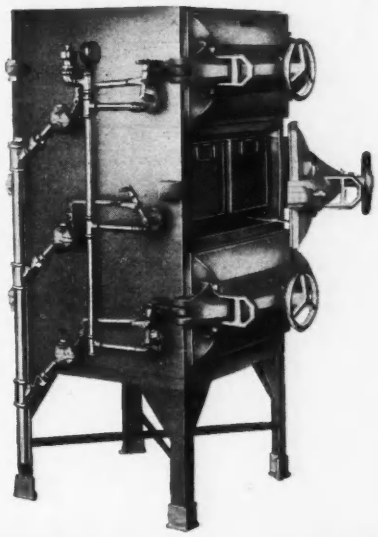

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● Since many vitamins are soluble in water, avoid the dissolving action of ordinary boiling in cooking your foods. Also, to retain nutrition values and natural color, use rapid cooking with high initial temperature, and avoid long steam table storage.

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● All orders are subject to war-time priorities, but why not include a Steam-Chef in your future budget, for delivery as soon as available?

Write for Catalog and also Steam-Chef Service Guide giving maintenance information which will prolong the life of your present Steam-Chef.

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sible. An Italian might say "Wine is good for the heart," or "Bread makes blood." Therefore, a statement phrased thus, "Vitamin A (or carrots as bearers of carotene) are good for the eyes" might be effective. Such statements could be translated into Italian and used on posters. At the outset of a nutrition campaign among Italian background groups, the actual *foods* should be discussed as bearers of certain qualities to the extent this is feasible, and the mineral and vitamin information in terms of these foods worked in later.

Bread is truly the staff of life to an Italian, and most other food is *compatico* (accompaniment). Although it is regarded as wrong to waste any type of food, it is sinful to waste bread. However, the Italians will not buy American bread, so the Italian bakers must be approached if any headway is to be made in the use of enriched flour by this group, many of whom are skeptical of its value and regard it as a scheme to raise the price of food, or feel that "natural" foods are the only healthy foods.

In evaluating Italian meals it is necessary to remember that portions are large—in fact "a portion is often a course in itself. Balance is more a question of food intake over several meals rather than within an individual meal." Contrary to popular belief, Italians do not live on *pasta* (spaghetti, macaroni, and the like). Rather they are semi-gala dishes, commonly eaten on Thursdays and Sundays. Next to bread, olive oil, for the Italians of southern Italy at least, has the next highest value, being the universal fat for this group who use it for cooking and for dressing salads.

Some of the recommendations which will be found acceptable to many Italians, in view of the above and other food preferences, are the following: a shift from white to darker breads; the use of more *ricotta* (a type of cheese), both fresh and dried, with macaroni; combining butter with olive oil or lard in making sauces; the making of macaroni at home with enriched flour, milk, potatoes, and grade B eggs; use of cereals as breakfast food and more corn meal, whole wheat grain, and whole kernel corn throughout the day; use of more milk, eggs, and American type cheeses in the diet; use of milk with fruits (since it is necessary to refute the belief that these do not "mix"); use of potatoes, correctly cooked and served with butter; and blending of domestic peanut, corn and soy bean oils with olive oils.

Suggestions for evacuation plans and emergency feeding of Italian background groups include: giving them choice as to location, if possible, in setting up evacuation centers and placing *paesani* (groups originating in the same area in Italy) together; allowing women to do their own shopping and cooking; making allowance for basic regional food differences in use of certain oils; provision of dried rather than canned foods except for babies and small children; planning for small gardens and keeping of farm animals where possible; division of work where communal cooking is necessary, so that each group acts as hostess for one day or meal.

In regard to the feeding of Italian workers in defense industries, the following suggestions are made: "Foods should be selected with some eye to their acceptability: that is, foods which are offensive to some or all of the groups should not be featured. The greatest offender to the Italian group is any type of creamed dish. Factory work for women of Italian origin at least, predicates some degree of assimilation and literacy, as well as a possible wider acceptance of American foods, but it cannot be overlooked that they still require careful handling. Experience with school lunch programs has shown that Italian children who are underfed will nevertheless go without or waste the food, rather than learn to eat it."

THE DIETITIAN AND CIVILIAN DEFENSE

In reply to a letter from Nelda Ross, President of the American Dietetic Association, to the Director of the Office of Civilian Defense, Washington, the following suggestions were made as to how the American Dietetic Association can best contribute to the total war effort. Many of the suggested activities are, of course, already under way.

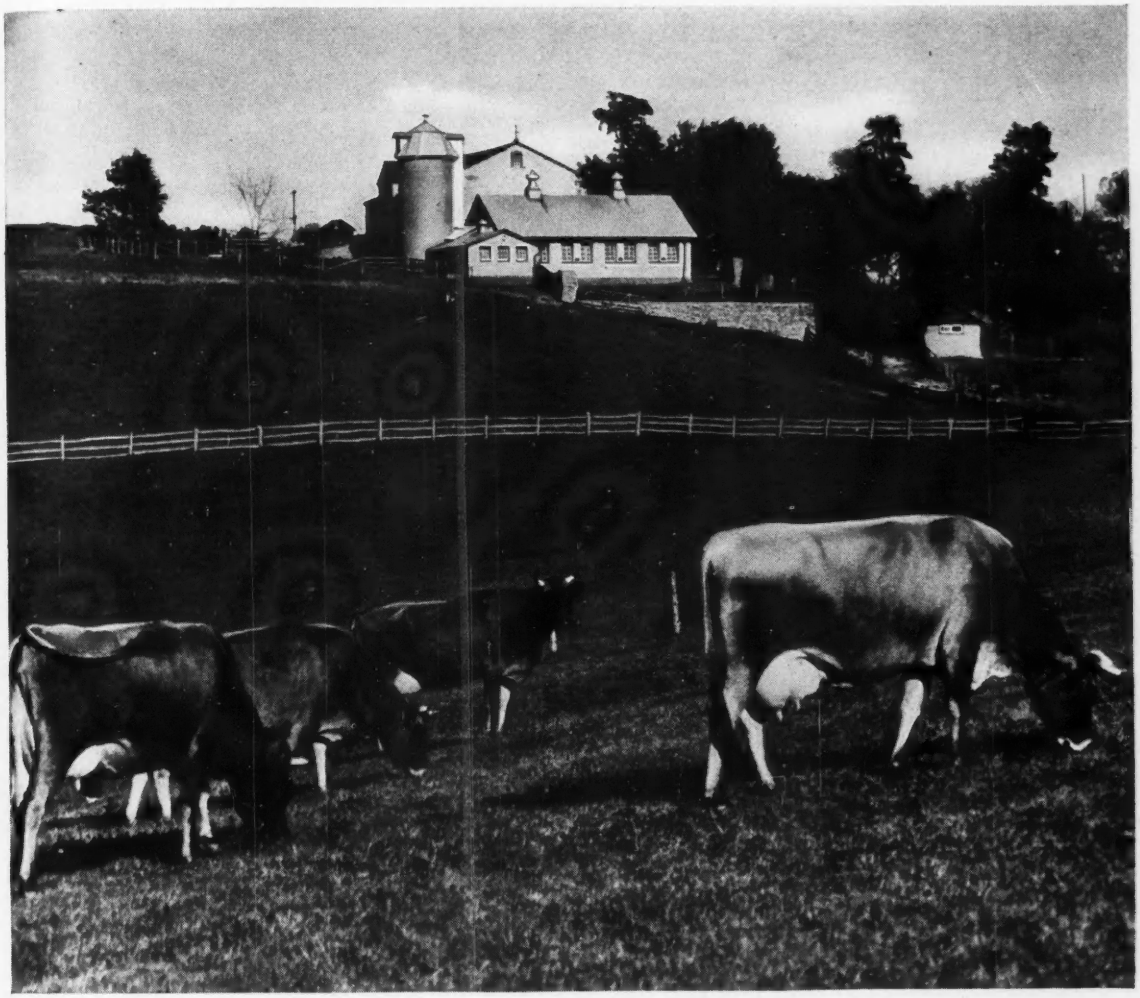
Offer to the local and state councils of the OCD professional advice about their particular programs and follow this up by using professional groups and individuals in setting up nutrition information centers or committees of the councils, and by providing specialized information to the councils for use by other organized groups. Attempt through the councils to get at any latent talent either voluntary or professional.

Continue to carry articles in the JOURNAL of the American Dietetic Association about any definite program of state or local organizations in order to suggest possibilities to workers in other areas.

Clear with local and state defense councils and other professional groups in the nutrition field to prevent overlapping of effort.

Cooperate with councils in attempting to reach areas or groups that are in desperate need of nutrition facts.

Keep constantly in touch with state and local councils for material prepared by OCD and other government agencies which might be of particular use to the Association in its nutrition program (for example, for possible use at the annual meeting in October 1942).



"Field of Battle"

NO GUNS echo through these rolling hills. No tanks disturb the quiet of these still, green pastures. Yet, this, too, is a battlefield.

For this is a dairy farm. And milk and milk products rank high among the foods recommended by the National Nutrition Program in the fight to make Americans fit for the grim, hard work of war.

This battle for better health is Borden's battle, too. For years our research has concentrated on milk and its place in human nutrition. Many men in our laboratories are devoting their entire careers to this important work. Their contributions are already many and varied.

In addition to pure research, Borden has, over the years, developed and perfected Borden's unique Quality Control.

This is a precise system of laboratory checks and balances. It safeguards the purity and quality of *every Borden product . . . in every phase of production.*

Quality Control insures that all Borden products . . . from Biolac to Evaporated Milk, from Beta Lactose to Ice Cream . . . conform to the nutritional standards which the Borden Company has observed for 85 years.

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Borden —BETTER NUTRITION THROUGH MILK RESEARCH

Book Reviews

The Dynamic State of Body Constituents. By Rudolf Schoenheimer, M.D. Late Associate Professor of Biological Chemistry, Columbia University. Cambridge, Massachusetts: Harvard University Press, 1942. Cloth. Pp. 78. Price $1.75.

This is a profound and scholarly dissertation by a scientist whose untimely death closed a career the fruits of which had already given him well-deserved prominence in the field of the natural sciences. As a result of Dr. Schoenheimer's investigations, there has emerged a concept of metabolic "regeneration," the central idea of which is the continual release and uptake of chemical substances by tissues, to and from a circulating metabolic "pool." Only relatively few of these cyclic processes, emanating from the pool's multitudinous chemical reactions, are concerned with the elimination of waste products. This concept is further illumined under three divisions of the book under review, each of which comprises, *in toto*, one of three lectures presented in 1941 under the auspices of the Edward K. Dunham Lectures for the Promotion of the Medical Sciences at Harvard University.

The lecture entitled "The Reactions of the Body Fats Investigated with Deuterium," starts out with the premise "that all constituents of living matter . . . are in a steady state of rapid flux." Then follows a brief history of the developments in the general concept of the mechanism of life from that of the alchemist "who sought the philosopher's stone," to the work of Lavoisier on combustion, Helmholtz and his thermodynamics, and later when it was realized that human and other animals were highly sensitive to the quality of the body "fuel." All these theories presupposed that the structural elements of the body are primarily in a fixed or stable state.

By means of biological experiments with isotopic compounds, Dr. Schoenheimer first investigated the chemical processes in which body fats are involved, as a result of which he concluded that the animal's body fats, despite their qualitative and quantitative constancy, are in a state of rapid flux. The foregoing section and that entitled "The State of the Body Proteins" serve to demonstrate how extensively the body constituents of a living organism are subject to regeneration.

In the concluding section, "The Role of Structural Elements in the Formation of Excretory Products," the author integrates and interprets his findings in part as follows:

"All regeneration reactions must be enzymatic in nature. The large molecules, such as the fats and the proteins, are, under the influence of lytic enzymes, constantly being degraded to their constituent fragments. These changes are balanced by synthetic processes which must be coupled to other chemical reactions, such as oxidation or dephosphorylation. After death, when the oxidative systems disappear, the synthetic processes also cease, and the unbalanced degradative reactions lead to the collapse of the thermodynamically unstable structural elements. . . . The replacement of a brick fallen from a wall requires energy, and in the living organism energy debts are paid by chemical reactions.

"For the few coupled biochemical reactions which have been carefully investigated, such as those involved in muscle contraction or respiration, it has been shown that every chemical step is specifically related to some other one. The complex organic molecules present in living matter must require for their maintenance the steady occurrence of an abundance of various reactions. The finding of the rapid molecular regeneration, involving constant transfer of specific groups, suggests that the biological system represents one great cycle of closely linked chemical reactions. This idea can scarcely be reconciled with the classical comparison of the living being to a combustion engine nor with the theory of independent exogenous and endogenous types of metabolism.

"The simile of the combustion engine pictured the steady flow of fuel into a fixed system, and the conversion of this fuel into waste products. The new results imply that not only the fuel but the structural materials are in a steady state of flux. The classical picture must thus be replaced by one which takes account of the dynamic state of body structure.

"A simple analogy, which may be taken as an incomplete illustration of this concept of living matter, can be drawn from a military regiment. A body of this type resembles a living adult organism in more than one respect. Its size fluctuates only within narrow limits, and it has a well-defined, highly organized structure. On the other hand, the individuals of which it is composed are continually changing. Men join up, are transferred from post to post, are promoted or broken, and ultimately leave after varying lengths of service. The incoming and outgoing streams of men are numerically equal, but they differ in composition. The recruits may be likened to the diet; the retirement and death correspond to excretion.

"This analogy is necessarily imperfect as it relates only to certain aspects of the dynamic state of biological structure. While it depicts the continual replacement of structural units, it takes no account of their chemical interactions.

"The question as to the forces responsible for the arrangement of atoms in biochemical molecules in living organisms is as yet beyond the scope of laboratory experimentation."

Meat and Meat Cookery. By the Committee on Preparation Factors, National Cooperative Meat Investigations. Chicago: National Live Stock and Meat Board, 1942. Paper. Illustrated. Pp. 254. Price 50 cents.

Every dietitian and every teacher of foods and nutrition will welcome this book. It is authoritative, practical and complete. Part I discusses the place of meat in the dietary, its physical characteristics, inspection, grading, preservation, care in the home, how to select meat, and principles of preparation and cookery. Interspersed in the text are the

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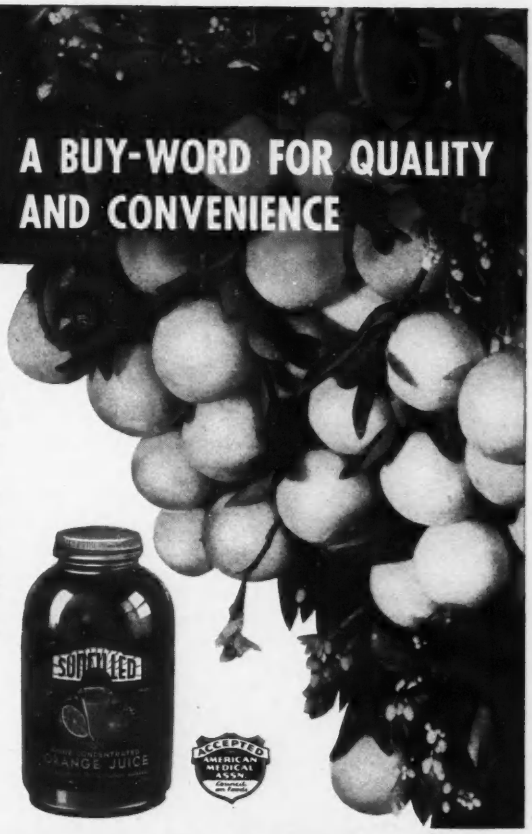

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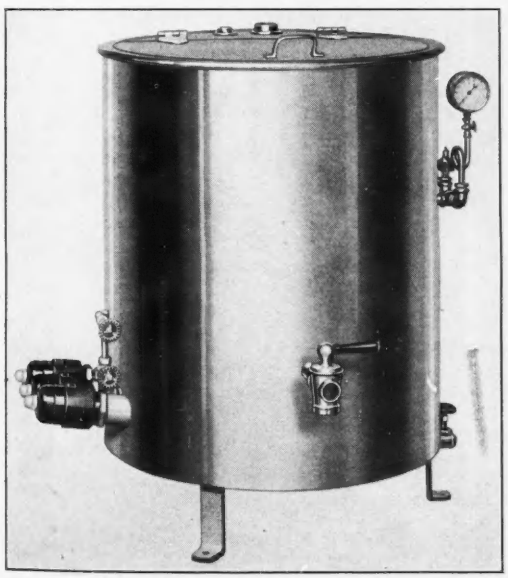

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excellent meat charts prepared by the National Live Stock and Meat Board which show in graphic form the content of protein, minerals and vitamins, and reproductions of slides which show the physical characteristics of meat. Under the topic of selection of meat are included the above-mentioned Board's charts of beef cuts and various other meat cuts with full descriptions of each and the recommended cooking method. These charts are sufficiently descriptive to enable even the novice to cut up a side of beef, pork or lamb, provided he has a sharp knife and other appropriate tools.

Part II adequately summarizes experimental studies in meat cookery and includes full technical details. Part III covers methods for experimental studies in meat cookery, including sample cooking record forms and full details and photographs concerning laboratory equipment. Finally, there are citations to the literature and a complete index.

Now that meat appears to be one of the most important items of the diet not only in the nutritional sense but also from the point of view of rationing, this book will be invaluable to the readers of this JOURNAL.

Food and Drug Regulation. By Stephen Wilson, Ph.G., Ph.C., Ph.D., Pittsburgh College of Pharmacy. American Council on Public Affairs, Washington, D. C., 1942. Pp. 177. Price, paper $2.50, cloth $3.25.

"Just as the emphasis has shifted from curative medicine to preventive medicine, the next logical step in food legislation in the United States is from the protective phase to the nutritional phase. At such a time it may be the part of judgment to consider the history of food and drug legislation, inquire into its causes, and study some of its consequences, both social and economic." This is the purpose and theme of this study, sponsored by the American Council on Public Affairs in accordance with its stated purpose of promoting the spread of authoritative facts and significant opinions concerning contemporary social and economic problems.

While efforts of the state to prevent food and drug adulteration date back to ancient times, the earliest direct legislation for the control of food went into effect in the United States in 1883 and was designed to prevent the importation of adulterated and spurious teas. This act and other similar legislation controlling individual items, as well as food legislation passed by the several states, instigated the movement which culminated in the Pure Food and Drugs Law of 1906. This law, as well as the events leading up to its passage, and the opposition which it encountered in Congress are reviewed. Then follow enlightening and not uninteresting chapters on the difficulties of administration, the needs for new legislation which developed, and the campaigns for further legislation which finally resulted in the Federal Food, Drug and Cosmetic Law, passed in 1938. The work of the American Medical Association, Consumers' Research, Inc., the American Home Economics Association, and other groups is recounted, as well as cooperative efforts by industry and the press to prevent the incorporation of certain provisions in the legislation that would make enforcement difficult or impossible. Accounts of the activities of the Muckrakers, "Dr. Wiley's Poison Squad," the Food and Drug Administration's "Chamber of Horrors," are a few of the entertaining side-lights included in the book. A final chapter entitled "Causes and Consequences" discusses the limitations of food and drug control legislation, and the effects of this legislation on the consumer, the manufacturer, the standard of living, employment, and business. The suggestion that the adulteration of foods represents a serious form of economic waste presents an interesting viewpoint. It is also suggested that perhaps the answer to the pure food and drug problem lies in consumer education and that sound consumer education will inevitably result, in turn, in an extension of sound food, drug, and cosmetic legislation.

The book will be valuable as a reference for college courses and will also be of interest to those connected with food manufacturing concerns.

Vitamins for Health. By Henry Borsook and William Huse, California Institute of Technology. New York: Public Affairs Committee, Inc., 1942. Paper. Pp. 33. Price 10 cents.

This pamphlet is designed for use by the layman "as an easy guide to the knowledge of vitamins for everyday use." It is in large part a condensation of Borsook's *Vitamins, What They Are and How They Can Benefit You*, according to the Foreword. Starting with a general statement about nutrition and diet, and sample menus of "good meals that are not so good" in terms of vitamins, the book proceeds with explanations of the need for and sources of each vitamin, evidently leading up to directions for planning good meals that *are* good. But here the book leaves the reader somewhat bewildered, as do many "simplified" books of this type. There are general directions for including certain items in the diets of children and adults which are excellent as far as they go, also directions for cooking vegetables, an explanation of flour and bread enrichment, and other helpful material, but it is doubtful whether the average housewife, after reading the book or with the book in hand, could sit down and figure adequate meals for her family on the basis of the information given. One glaring omission is the table of recommended daily allowances for specific nutrients for children and adults prepared by the Committee on Food and Nutrition of the National Research Council, even though some of these are given here and there throughout the text. Under "Hints for Vitamin Buying" it is stated that "you will find it necessary to exercise care in selecting the most economical sources of vitamins," and some general rules are given for selecting vitamin preparations, but it would seem that without more specific figures the application of the information in the bulk of the text material would be difficult for the lay person to make except in a general way. There is more than one doubtful statement, such as that under vitamin C and the treatment of scurvy concerning which the authors state: "This dreadful condition is quickly cured by 1/1500th of an ounce of vitamin C daily or the amount contained in about two ounces of orange juice." Yet on the following page the authors state that "about 3½ oz. of orange juice is more than enough to prevent scurvy," implying thereby that the daily or preventive needs are greater than the curative. In this connection, as every dietitian knows, the curative treatment of a vitamin deficiency calls for massive intakes of vitamins as borne out by the following excerpts from authoritative sources: McLester, in *Nutrition and Diet in Health and Disease*, says: "In outspoken scurvy . . . or borderline states obviously due to vitamin C deficiency, ascorbic acid in the crystalline form should . . . be given. . . . Relatively large doses, from 200 to 500 mg. daily, are proper and entirely safe." Gordon and Sevringhaus, in *Vitamin Therapy in General Practice*, state that "Since the daily adult human requirement for vitamin C probably lies somewhere between 25 and 100 mg., the therapeutic dose must obviously be several times larger. . . . Recommended dosage is therefore from 200 to 300 mg. two or three times daily by mouth, taken preferably before or with meals, since the gastric acid probably assists in absorption."

Other statements such as "Vitamin D is the only one with which at present there is danger of harmful overdosage" may be misleading and are conducive to wasteful if not harmfully excessive use of vitamin concentrates. Another, apt to be misapplied by the layman, reads as follows: "Several good vitamin B concentrates are now on the market, in capsules, pills, and in liquid form. Several, in fact, contain not only the vitamins of the B complex, but vitamins A and D, as well as iron, iodine, and manganese.

The Newer Concepts of Meat in Nutrition

Meat . . .

and the Altered Nutritional Needs during Gravidity and Lactation

RECENTLY published recommendations of the National Research Council indicate the greatly increased nutritional requirements during pregnancy and lactation. The following daily allowances are advised:

	Calories	Protein (Gm.)	Calcium (Gm.)	Iron (mg.)	Vitamin A (I. U.)	Thiamine (mg.)	Ascorbic Acid (mg.)	Riboflavin (mg.)	Niacin (mg.)	Vitamin D (I. U.)
Moderately Active Woman.....	2500	60	0.8	12.0	5000	1.5	70	2.2	15	?
Pregnancy (latter half).....	2500	85	1.5	15.0	6000	1.8	100	2.5	18	400 to 800
Lactation.....	3000	100	2.0	15.0	8000	2.3	150	3.0	23	400 to 800

Meat is an advantageous means of satisfying these increased needs. Providing proteins of high biologic value, it supplies all ten essential amino acids needed not only for maintenance of maternal tissue but also for fetal growth and for the synthesis of the milk proteins.

Meat is also a significant source of thiamine, riboflavin, and niacin.

The iron, copper, and phosphorus supplied by meat aid in providing the greater amounts of these minerals required.

Thus meat, with its abundant supply of many essential nutrients, is an important food in the dietary of the gravid and lactating woman.

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These concentrates enable one to secure the recommended amounts of the above vitamins and minerals at a cost of five to seven cents a day for each person. Those who cannot afford to spend much on food may hesitate to buy concentrates. Nevertheless, on a very limited food budget an expenditure of a few cents a day per person for a good polyvitamin concentrate will provide more of the vitamins likely to be lacking than the same amount spent on bulk staple food." Another suggestion of doubtful merit is that sugar might be "enriched with benefit to the whole nation."

Obviously, the contents of this booklet are not to be taken before shaking.

Nutrition and Diet Therapy. A Textbook of Dietetics. By Fairfax T. Proudfit. New York: The Macmillan Company, 1942. Fabrikoid. Illustrated. Pp. 1069. Price $3.25.

The author of this textbook, a pioneer in her profession in the South, is to be congratulated on this, the eighth edition of her book which was first published in 1918. Many of the excellent and practical teaching devices have been retained in the edition under review and others have been added which will enhance the book's value.

For those as yet unfamiliar with Miss Proudfit's book, a brief outline of its content and general plan is in order. The first section, entitled "Normal Nutrition," includes consideration of the problem from the standpoint of economy, marketing, and racial and national food habits, followed by "Feeding in Obstetrics, Lactation, and Children of Different Ages," and "Normal Nutrition—Practical Application," the latter presenting outlines of laboratory lessons. "Diet Therapy" includes a tabular summary of routine hospital and special diets with indications for use, characteristics of the diet, foods to be used and which to avoid, and feeding intervals, followed by separate chapters on the diet therapy of specific conditions. The fifth and final section, "Recipes," is followed by an appendix with the usual food tables and height-weight charts and, in addition, examination questions and outlines of courses in dietetics and diet therapy for student nurses.

Home Canning for Victory. Compiled and edited by Anne Pierce. New York: M. Barrows & Company, Inc., 1942. Cloth. Illustrated. Pp. 106. Price $1.25.

This book, which reached the JOURNAL too late for inclusion in an earlier issue, is a carefully indexed and comprehensive guide, based on the latest standardized methods for every phase of food preservation established by the Bureau of Home Economics, U. S. Department of Agriculture. The methods, recipes and rules from the latest government reports have been digested to apply to home conditions and resources, specifically and combined with other authentic, tested rules.

Fruits, tomatoes, and acid foods are treated in one section and the non-acid vegetables in another. Directions for the canning of meats, making jelly and preserves, pickles and relishes, and the dehydration of fruits and vegetables follow. Some savory recipes under relishes include apple chutney, ginger pear chips, spiced currants and raspberries, and brandied peaches. The appendix contains time-tables for processing fruits, vegetables, and meats condensed from Farmers' Bulletin No. 1762, U. S. Department of Agriculture, also lists of necessary materials for canning and for drying foods, and suggestions for use of sugar substitutes in canning.

There is no question but that this material, compiled under the able editorship of Miss Pierce, will be of great value to all doing home canning whether on a large or small scale, in war or peacetime.

Handbook of Home Canning. By Julia Lee Wright. Paper. Pp. 31. Price 10 cents on application to Safeway Homemakers' Bureau, Box 660, Oakland, California.

This handbook by Mrs. Julia Perrin Hindley, director of the Homemakers' Bureau of Safeway Stores, Inc., who writes under the pen name of Julia Lee Wright, is a practical, compact, and surprisingly complete treatment of its subject and should prove useful to both experienced and inexperienced canners. In an introductory statement by the author it is stated that the directions included are the result of "years of study, testing and re-testing of methods, and observation of products under all sorts of typical home conditions and temperatures here in the Homemakers' Bureau testing kitchens." Some especially useful features of the book are: directions for canning fruits without sugar; tables of vegetable weights and measures and estimated yields; directions for preparing vegetables to be frozen and stored in freezing lockers of cold storage plants; recipes for jams, pickles, and marmalades; and suggestions for storage of fall vegetables which are not to be canned, as well as the storage of canned foods and pickles.

Essential Constituents of the Diet

The essential constituents of an adequate diet, so far as these have been identified are:

At least ten of the twenty-two amino acids which arise from the digestion of proteins.

Four fat-soluble vitamins—A, D, E and K.

At least nine vitamins which are dissolved by water and which never occur associated with fats—vitamin C (ascorbic acid), thiamin (vitamin B_1), riboflavin (vitamin B_2, vitamin G), niacin (nicotinic acid), pantothenic acid, pyridoxin (vitamin B_6), choline, P-aminobenzoic acid, and biotin.

One type of fatty acid (linoleic acid).

A source of dextrose.

At least thirteen inorganic or mineral elements—sodium, potassium, calcium, magnesium, chlorine, phosphorus, sulfur, iodine, iron, copper, manganese, zinc and cobalt.

Water and oxygen.—*McCollum, E. V.: What is the Right Diet? The New York Times Magazine, September 13, 1942.*

3 WAYS TO BEAT HIGH FOOD COSTS!
HAM 'N' BEAN RAREBIT
Add grated sharp cheese and a dash of Worcestershire to white sauce. Stir in cooked dried lima beans or green beans and beaten eggs. Place two overlapped slices of Toastmaster Toast over two thin slices of pan-broiled ham. Pour rarebit over toast. Garnish with fried apple slices.
DILLED SHRIMP AND EGGS
Make a white sauce, stir in beaten egg yolks, lemon juice and finely cut fresh dill. Place cooked shrimps and sliced hard cooked eggs on stripe of Toastmaster Toast. Cover with dill sauce. Garnish with dill heads, radishes and a lemon wedge.
BROILED HALIBUT A LA RUSSE
Make a beet sauce by adding coarsely grated cooked beets and lemon juice to a white sauce, made with a little corn syrup and sugar. Pour the hot beet sauce over a slice of broiled halibut. Surround with triangles of Toastmaster Toast, garnish with buttered peas and parsley.
Add taste and eye-appeal to thrifty dishes with low-cost Toastmaster Toast
• Rising food costs are less of a problem when TOASTMASTER TOAST is part of the recipe. For example, consider these thrifty dishes. They look tempting. They taste delicious. They satisfy the hungry patient. Yet, each is a low-cost serving . . . made more attractive and nutritious by styling with TOASTMASTER TOAST.
There are so many ways your TOASTMASTER TOASTER can help you serve better for less, add tempting variety to every tray. And it's a comfort to know that every slice of TOASTMASTER TOAST has that same rich, crunchy melt-in-your-mouth flavor that most patients get at home.
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THE NATIONAL HABIT AT HOME AND IN PUBLIC

Current Literature

AMERICAN JOURNAL OF DIGESTIVE DISEASES

Vol. 9, July 1942

*Purpura due to vitamin K deficiency in anorexia nervosa. P. M. Aggeler, S. P. Lucia and H. M. Fishbon.—p. 227.

Purpura Due to Vitamin K Deficiency. There is a two-fold mechanism for the production of vitamin deficiencies in patients suffering from anorexia nervosa, the exogenous dietary deficiency and hypermotility of the gastro-intestinal tract resulting in defective absorption. The tendency to bleed was not controlled by the administration of large quantities of fresh orange juice or the intravenous injection of large doses of ascorbic acid. A case of purpura due to hypoprothrombinemia is reported in a patient suffering from anorexia nervosa in which the abnormal bleeding state was cured by the administration of vitamin K.

AMERICAN JOURNAL OF PUBLIC HEALTH AND THE NATION'S HEALTH

Vol. 32, July 1942

*Food establishment sanitation in a municipality. F. A. Korff.—p. 739.

Vol. 32, August 1942

*Epidemiology of lye poisoning in the United States. H. W. Brown and G. Kiser.—p. 822.

Food Sanitation. Food inspection in a municipality requires knowledge of the causes of food poisoning and food infections, their prevention, and the maintenance of food establishments in a clean condition. Corrective measures include education. Health-conscious people will usually respond to educational methods sponsored by the health department.

Lye Poisoning. Accidental lye poisoning with resultant esophageal strictures continues to be a problem of considerable importance. This condition is somewhat more prevalent in the South than elsewhere, occurs relatively more frequently in Negroes than in whites, and is more common in rural areas. The greatest incidence is in children from 1 to 5 years of age. Prevention of such accidents consists in continuous education of adults and children as to the dangers of ingesting the substance, and the necessity of medical care if lye is ingested.

CEREAL CHEMISTRY

Vol. 19, July 1942

*The relation between the vitamin-A-active carotenoids in corn and the number of genes for yellow color. A. R. Kemmerer, G. S. Fraps and P. C. Mangelsdorf.—p. 525.

*The thiamin content of wheat flour milled by the stone milling process. A. S. Schultz, L. Atkin and C. N. Frey.—p. 529.

*The stability of vitamin B_1 in the manufacture of bread. A. S. Schultz, L. Atkin and C. N. Frey.—p. 532.

Yellow Color in Corn. The number of genes of yellow color in corn directly affects the amount of vitamin A-active carotenoid pigment but does not affect the relative proportions of alpha, beta, and K carotene and cryptoxanthin.

Thiamin in Wheat Flour. White flours produced in two stone mills were found to contain thiamin in approximately the same concentration as the original wheat.

Stability of Vitamin B_1. Synthetic thiamin, high-vitamin bakers' yeast, and whole wheat were used as sources of thiamin in bread. The stability of thiamin was not affected by the source but was markedly influenced by the time of baking. Loaves baked normally lost approximately 20%. The major portion of thiamin destruction occurred in the crust although destruction in the innermost crumb was not insignificant.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Vol. 119, August 1, 1942

*Obstetric significance of barbiturates and vitamin K. J. E. Fitzgerald and A. Webster.—p. 1082.

*Primer on arthritis. E. P. Jordan.—p. 1089.

Vol. 119, August 8, 1942

*The stomach and military service. W. L. Palmer.—p. 1155.

*Diabetic coma. E. P. Joslin.—p. 1160.

*Treatment of arthritis with vitamin and endocrine preparations. R. H. Freyberg.—p. 1165.

*Handbook of nutrition: IV. Calories in medical practice. E. F. Du Bois and W. H. Chambers.—p. 1183.

*Experimental observations on the treatment of hypertension. H. Goldblatt, J. R. Kahn and H. A. Lewis.—p. 1192.

*The harmlessness of glycosuria for a patient treated with protamine zinc insulin. Editorial.—p. 1203.

Vol. 119, August 15, 1942

Cultural education of a physician: William W. Root Lecture of Alpha Omega Alpha Honor Medical Society. M. Fishbein.—p. 1239.

*Presentation of educational data. H. G. Weiskotten.—p. 1263.

Vol. 119, August 22, 1942

*Handbook of nutrition: V. Water and salt requirements in health and disease. J. H. Talbott.—p. 1418.

*The comparative nutritional value of butter and oleomargarine. Council on Foods and Nutrition.—p. 1425.

Vol. 119, August 29, 1942

*The incidence of nutritional and vitamin deficiency. M. A. Krupp.—p. 1475.

Vitamin K. The administration of vitamin K, either the original alfalfa extract or the synthetic product, to a mother in labor increases the percentage of prothrombin of both mother and child. The vitamin may be given orally or parenterally. Such medication also prevents the drop in the prothrombin level of the baby which norm-

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Contributed by Colleen Cox Hambleton, Food Utilization Division, Bureau of Home Economics, U. S. Department of Agriculture, Beltsville, Maryland; and the JOURNAL staff.

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PEP HALLOWE'EN COOKIES

Dietitians *know* what a grand cereal KELLOGG'S PEP is. These crisp, toasty flakes are a real "appetite arouser"—and a rich source of the two vitamins most likely to be deficient in ordinary diets—vitamins D and B_1.

But PEP is also a splendid ingredient for making tempting cookies! For instance, just the sight of the crisp, delicious cookies, with their intriguing Hallowe'en shapes and designs is enough to make anyone's mouth water.

FREE! We'll be glad to send you recipes for these and other delicious cookies so easily made with KELLOGG'S PEP. Also **FREE**, a complete set of "Kellie Cards" featuring year 'round holiday menus and recipes you'll find mighty helpful. Simply write to Dept. JADA 210, Kellogg Company, Battle Creek, Michigan.

KELLOGG'S PEP contains per ounce the minimum daily need of vitamin D; ¼ the daily need of vitamin B_1 (½ for children up to 5).

ally occurs from the second to the fifth day. The administration of sodium pentobarbital or sodium amyl bromoallyl barbiturate as an analgesic definitely decreases the prothrombin level in mother and child and can be prevented by the administration of vitamin K to the mother during labor. It is apparent that even small doses of barbiturates affect the prothrombin level. It seems reasonable to assume that hemorrhage is more likely to occur in the presence of a low-prothrombin level.

Primer on Arthritis. The general nutrition suffers severely in rheumatoid arthritis. Partly because of the disease itself and partly because of secondary consequences, the general state of the bodily functions is greatly impaired. Although muscular atrophy is the most pronounced feature, all the connective tissue structures are affected in greater or less degree. In severe cases profound cachexia may develop. Various expressions of abnormal gastro-intestinal physiology are often seen. They may be secondary to the chronic debilitating nature of the disease. Achlorhydria occurs in about 20% of cases, but this incidence is not significantly greater than in many other diseases in the same age period. Visceroptosis, stasis and atony of the colon are observed in a certain proportion of cases but only rarely do they produce symptoms. The majority of patients with rheumatoid arthritis are underweight, undernourished and chronically ill. Every effort should therefore be made to maintain their nutrition in the best possible state. A well-balanced diet of nourishing food is essential. In addition, liberal quantities of cod liver oil may be given. Among measures which are useless or of questionable value are vitamins in massive doses. At the present time, therapy with large doses of vitamin D should be regarded as of doubtful value.

In osteoarthritis, dietetic errors, overexertion and gastro-intestinal dysfunction all require steady care. Vitamin deficiencies must be controlled and the patient restored to the highest state of well-being of which he is capable.

In gouty arthritis the diet during attacks should be free of purines, high in carbohydrates and purine-free proteins (milk, eggs, cheese) and low in fats. During acute attacks it should be low in purines, high in carbohydrates, adequate in vitamins and protein (especially the purine-free proteins —milk, eggs, cheese) and low in fat. Chicken, fish and nonglandular meats are relatively low in purines and can be prescribed once a day. Other meat should be served only three or four times a week. Alcohol should be avoided entirely "if at all possible." Purine-free foods can be eaten freely: fruits of all kinds, milk, eggs, cheese, bread (except whole grain), vegetable soups (made without meat), caviar, shad roe, artichokes, beets, broccoli, Brussels sprouts, cabbage, carrots, celery, corn, cucumber, eggplant, endive, lettuce, okra, parsnips, potatoes, pumpkin, rutabagas, sauerkraut, string beans, summer squash, Swiss chard, tomato, turnips, hominy, macaroni, noodles, spaghetti, cereals (except whole grain), and pies (except mincemeat). Foods to be avoided include sweetbreads, anchovies, sardines, calf and beef liver, beef kidneys, brains, meat extracts, gravies, and meat soups.

The Stomach and Military Service. Autopsy studies indicate that peptic ulcer occurs at some time in at least 12% of all adults. The lesion appears about three times as frequently in males as in females, and the highest incidence occurs in the third decade of life, the period of greatest military service. Digestive disorders constitute a major problem in military medicine. The incidence of peptic ulcer in such disorders is very high. Consequently the policy of rejecting selectees who are known to have had an active ulcer within the past five years is wise and should be followed quite rigidly. In questionable cases a detailed investigation should be made and the candidate accepted only if it proves negative. When ulcers develop or recur in service, appropriate treatment should of course be given. When the lesion is healed the patient may be discharged or may continue on limited duty within the continental United States. He should not be allowed to return to full rations or active field duty. The clinical diagnosis of chronic gastritis is vague, indefinite and unsatisfactory. Great care must be exercised in correlating symptoms with the mucosal changes seen gastroscopically. The so-called simple, nonspecific, superficial, atrophic and hypertrophic forms of chronic gastritis do not produce symptoms and hence do not constitute a cause of disability. Ulcerative gastritis, however, may be associated with an ulcer-like distress or with massive hemorrhage or both and seems at times, at least, to be related to the lesion, peptic ulcer.

Diabetic Coma. In chronic conditions such as diabetes, in which treatment with diet, insulin, and exercise must be carried out daily over years of time, it is imperative that the patient be fully informed regarding his disease. In a simple way he must be taught all that is known regarding the treatment of the condition and of complications which may arise. He must know how to test his urine and must be impressed with the importance of testing at home at frequent, regular intervals. He must know how to weigh or measure his food and to substitute one food for another and must be impressed with the great importance of following his diet closely. Finally, he must be taught to keep in close touch with his doctor. When a patient with diabetes is seen in diabetic coma, it is proof that some one has blundered and if death due to the diabetic coma occurs, "the rule still holds."

Treatment of Arthritis. There is no known anti-rheumatic vitamin. It has not been clearly shown that any vitamin has any direct relationship to any rheumatic disease. It is true that deficiency of certain vitamins exists not infrequently in patients with chronic arthritis; in such cases adequate intake of the deficient food factor may materially improve the health of the patient, but it should not be expected that such treatment will directly benefit the arthritis. Vitamin therapy in this group of cases is a part of the treatment of the patient's general health and state of nutrition and not a "specific" treatment of the rheumatic disease. In some patients massive doses of vitamin D appear to have a beneficial effect, especially symptomatically. There is little or no evidence that this vitamin favorably alters the course of the rheumatic disease, especially rheumatoid arthritis. If used, therefore, vitamin D preparations should not be relied on as the "one measure treatment" for arthritis. The potential toxicity and expense should be kept clearly in mind. Neither is there known to be a hormone "specific" for arthritis, except in some cases of rheumatic disease developing with or shortly after the menopause.

Calories. Calories in medical practice are "just as important as they ever were," in spite of the fact that attention has been centered on the vitamins. No supplements of vitamins or mineral elements can alter the laws of the conservation of energy. Calories are still needed to keep the body warm and to furnish energy for muscular work. An appetizing menu may lead to a wide variation in the daily caloric intake. In one hospital a week's survey of the general diets as served showed a daily variation between 1900 and 3200 calories with an average of 2570 calories. But the food served does not necessarily represent the food intake of the patients. When the patients in semiprivate rooms selected food from a menu of approximately 3000 calories, about 25% of the bread, butter, and vegetables and 37% of the salads were not eaten. The ward patients on a nonselective diet of 3000 calories left between 5 and 10% of the food served. When special diets are needed it is essential to know the food intake as well as the food prescription. To simplify the calculation of diets, it has been a common practice to divide the vegetables and fruits into

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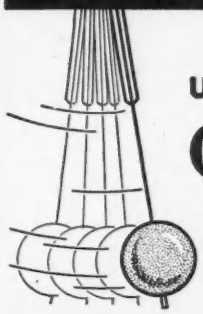

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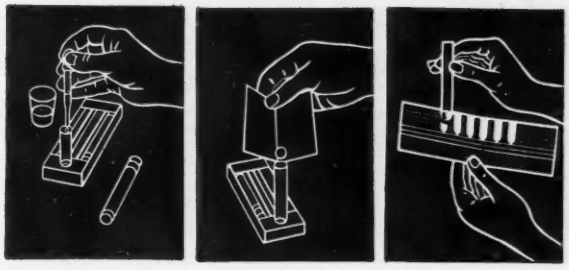

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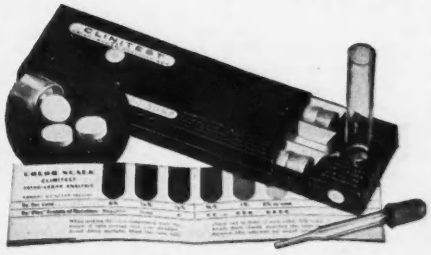

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general classes according to their total carbohydrate content. Recent analyses by improved methods indicate that a reclassification of some of the foods is in order. The later figures for available carbohydrate tend to be lower than those in the generally accepted tables. Another possible error has appeared in the sample to sample variations of cooked vegetables. The discrepancy between the calculated carbohydrate calories and those determined by direct analyses was particularly large in boiled squash, parsnips, and sweet potatoes. Exact data on the optimal proportion of fat to carbohydrate in the diet from the standpoint of meeting the caloric needs in the body under various conditions are scarce. If future research supports the present indication, a more abundant consumption of fat would be desirable for optimal nutrition.

Treatment of Hypertension. The addition of an excess of salt caused a definite rise of blood pressure in hypertensive dogs which did not occur in dogs with 80% of their kidney tissue removed surgically, or in normal dogs. No increase of pressure was observed when large quantities of salt (20 gm. daily) were added to the diet of dogs with experimental renal hypertension. The systolic and the diastolic pressure of one dog with experimental hypertension rose when it was fed a meat diet only when this animal gained in weight. Addition of beef fat to the diets of normal and hypertensive dogs caused a reversible rise of systolic pressure in both groups during the period of obesity, the diastolic pressure remaining unaltered. A moderate rise of blood pressure was reported in dogs with experimental renal hypertension when they were fed a meat diet or when urea was added to their diet. A high protein diet had no effect on the blood pressure of renal excretory insufficiency. Extreme deprivation of protein in hypertensive dogs fed a cracker-meal diet had an effect in slightly lowering the blood pressure only when these animals refused to eat the food and were losing weight.

Glycosuria. The minimizing of the importance of glycosuria in patients treated with protamine zinc insulin presents a new concept and as such will have to be subjected to further clinical investigation before a final evaluation.

Educational Data. The Council on Medical Education and Hospitals, American Medical Association, presents in this annual compilation of data pertaining to its educational activities, statements from authentic sources regarding medical education and war. Changes of major importance have occurred in the programs both of medical schools and of hospitals, and an attempt has been made to present a concise and accurate account of current activities. Included is the usual review of preliminary and undergraduate medical education, a description of the approved medical schools, comments on internships and residencies, the newly revised "Essentials of an Approved Internship" and revised lists of approved internships and residencies and fellowships in the specialties. A summary of the activities of the various agencies interested in continuation courses for practicing physicians is also included and, finally, the official requirements of each of the 15 approved examining boards in medical specialties, together with a statement of the policies adopted by these boards regarding allowances of credit for military service.

Water and Salt Requirements. This, the fifth in the series of special articles which will be published later as a handbook of nutrition, includes a discussion of the anatomy of body fluids, the ingress of water and salt into the body and their egress, and states that the prevention and treatment of sodium chloride deficiency is, theoretically and practically, a relatively simple matter. Salt intake should be increased if exposure to high temperatures is anticipated or if physical activity in the cold is contemplated, a daily intake of 15 gm. protecting against most symptoms of salt deficiency. Those ordinarily addicted to a high-salt diet will need no salt supplements. Others need extra dietary salt as salt tablets or a saline drink. The comment here is especially pertinent to those in charge of the feeding of soldiers and industrial workers. With regard to dehydration which may range from a mild state without detectable clinical signs to alarming severity associated with profound prostration and collapse, either inadequate intake or excessive loss of water and salt from the gastrointestinal tract or kidneys may be responsible. The interstitial fluid can best be restored by physiologic solution of sodium chloride. Dextrose may be added to salt solution and is especially indicated if ketosis is present, but it should not be given initially in place of saline solution. Profound acidosis should be treated with alkaline solutions in spite of many prejudices which have appeared in the literature condemning them. Their use lessens the burdens on the kidneys for regulation of the acid-base balance of the body.

Butter vs. Oleomargarine. At present there is no scientific evidence to show that the use of fortified oleomargarine in an average adult diet would lead to nutritional difficulties. A similar statement is probably justified in the case of growing children, but preliminary results from animal experiments indicate that more work is necessary before any specific conclusions can be made. Since the nutritional factors have not all been identified and since butter contains numerous additional fatty acids of unknown nutritional significance, the consuming public has a right to demand that the practice of clearly identifying oleomargarine and butter should be continued.

Nutritional and Vitamin Deficiency. In a survey of approximately 400 consecutive patients admitted to the clinic wards of Stanford University Hospital with reference to inadequate diet and signs of vitamin deficiency, approximately one-fourth of the patients had been taking an inadequate diet. Of those with inadequate diets, 11.4% showed definite signs of vitamin deficiency and among 297 with adequate diets, only 2 instances of clinical vitamin deficiency were detected. In the entire group the incidence of definite vitamin deficiency was 3.1%.

JOURNAL OF BIOLOGICAL CHEMISTRY

Vol. 144, June 1942

The isomerization of β-carotene and its relation to carotene analysis. B. W. Beadle and F. P. Zscheile.—p. 21.

*Studies in amino acid metabolism. VIII. The metabolism of l(−)-histidine in the normal rat. L. F. Remmert and J. S. Butts.—p. 41.

*The effect of added cystine in purified rations for the chick. G. M. Briggs, R. C. Mills, C. A. Elvehjem and E. B. Hart.—p. 47.

*Factors affecting the riboflavin content of the liver. G. C. Supplee, O. G. Jensen, R. C. Bender and O. J. Kahlenberg.—p. 79.

*Amino acid studies. I. Plasma amino acid retention in the hypoproteinemic dog as evidence of impaired liver function. E. Goettsch, J. D. Lyttle, W. M. Grim and P. Dunbar.—p. 121.

*A green pigment-producing compound in urine of pyridoxine-deficient rats. S. Lepkovsky and E. Nielsen.—p. 135.

*Effect of dietary choline, ethanolamine, serine, cystine, homocystine, and guanidoacetic acid on the liver lipids of rats. D. Stetten, Jr., and G. F. Grail.—p. 175.

*Some factors affecting the synthesis of ascorbic acid in the albino rat. T. S. Sutton, H. E. Kaeser and S. L. Hansard.—p. 183.

*An enzymatic conversion of radioactive sulfide sulfur to cysteine sulfur. C. V. Smythe and D. Halliday.—p. 237.

Vol. 144, July 1942

*The influence of fasting, epinephrine, and insulin on the distribution of acid-soluble phosphorus in the liver of rats. N. Nelson, S. Rapoport, G. M. Guest and I. A. Mirsky.—p. 291.

*Arterial and cerebral venous blood. Arterial-venous differences in man. E. L. Gibbs, W. G. Lennox, L. F. Nims and F. A. Gibbs.—p. 291.

*The biochemistry of strontium. M. Fay, M. A. Andersch and V. G. Behrmann.—p. 383.

*Pantothenic acid in the metabolism of Proteus morganii. A. Dorfman, S. Berkman and S. A. Koser.—p. 393.

*The interaction of the blood proteins of the rat with dietary nitrogen. R. Schoenheimer, S. Ratner, D. Rittenberg and M. Heidelberger.—p. 541.

Enriched Farina as a source of thiamine

When in your practice you have need for a bland, easily digested cereal that is low in crude fiber, consider the merits of PILLSBURY'S ENRICHED FARINA. In addition to its normal content of nutrients, Enriched Farina contains per pound of dry cereal:

1.66 milligrams of thiamine (vitamin B_1)

6.0 milligrams of niacin (nicotinic acid)

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1 "The Effect of Cooking Upon the Thiamine Content of Foods," Elizabeth Aughey and Esther Peterson Daniel. Journal of Nutrition 19: 285, 1940

Pillsbury's *Enriched* Farina

Histidine Metabolism. Liver glycogen formation follows the feeding of l(−)-histidine, maximum deposition occurring at 16 hours. In many cases a severe hematuria develops. Ketonuria produced by a high-fat diet is decreased by feeding l(−)-histidine.

Cystine. Chicks receiving diets containing 18% casein and an additional source of arginine and glycine require at least 0.3% of cystine (or its equivalent of methionine) for maximum growth. Cystine, without arginine and glycine supplementation, is ineffective; when fed with arginine and glycine, it aids in the prevention of gizzard erosion.

Riboflavin in Liver. Injection of riboflavin directly into the blood stream causes an immediate increase in concentration in the liver. This concentration increases during digestion and assimilation, being mobilized from other tissues. This transient concentration takes place even in animals whose tissue stores have been impoverished by a prolonged riboflavin-free dietary. The mobilization of riboflavin in the liver during digestion and assimilation, by thiamin depleted animals, is relatively slight. Thiamin replenishment of depleted tissues by oral feeding brings about a restoration of the riboflavin-mobilizing function. Pantothenic acid has a direct and specific function in the mechanism which causes the mobilization of riboflavin in the liver following ingestion of food. The influence of vitamin B_6 on the concentration of riboflavin in the liver was relatively slight in comparison with the apparent influence of the other factors.

Plasma Amino-Acid Retention. When casein hydrolysate is given intravenously or by gavage, the plasma is not cleared by amino-acid so rapidly in the hypoproteinemic dog as in the normal dog. The plasma amino-acid retention is obvious after only 1 week on the low-protein diet and increases progressively during the course of deproteinization. The retention is probably the result of reduction in the rate of deamination in an impaired liver. No correlation was found between the plasma amino-acid N level and the plasma albumin value. The plasma amino-acid N level is maintained at the normal value for long periods in the face of severe hypoalbuminemia, sometimes until edema appears.

Pyridoxine Deficiency. Pyridoxine-deficient rats excrete an unidentified compound which can be converted to a green pigment by ferric ammonium sulfate. Administration of pyridoxine stops the excretion of the precursor of the green pigment in a matter of hours.

Liver Lipids. The quantity of liver lipid and its composition with respect to nitrogen, phosphorus, and choline have been investigated in rats on various levels of choline nutrition and with additions to the diet of ethanolamine, serine, cystine, homocysteine, and guanidoacetic acid. The liver fat which results from dietary choline deficiency is poor in lecithin. That which results from the feeding of cystine or homocysteine is abnormally rich in this phosphatide. Ethanolamine and serine produce no great increase in liver lipid but bring about a rise in monoamino phosphatides. The feeding of guanidoacetic acid causes a marked fatty liver with a coincident striking decrease in the choline content of the liver lipid.

Synthesis of Ascorbic Acid. The effect of the vitamin A intake on ascorbic acid synthesis was studied by determining the level of ascorbic acid in the blood of animals receiving graded daily dosages of vitamin A, and the urinary excretion of ascorbic acid by animals receiving the U. S. P. vitamin A-free diet with and without vitamin A supplement. A suboptimal vitamin A intake resulted in a decreased concentration of blood plasma ascorbic acid and a decrease in urinary ascorbic acid. Ascorbic acid synthesis appears to be a general metabolic function.

Conversion of Radioactive Sulfide Sulfur. Cysteine and hydrogen sulfide containing radioactive sulfur have been added to an enzyme preparation which converts cysteine to pyruvic acid, ammonia, and hydrogen sulfide.

Phosphorus in Liver. Insulin causes a decrease of inorganic phosphorus in the blood plasma in part through its action on the liver. Following the injection of insulin in fed and fasted rats the concentrations of inorganic and organic acid-soluble phosphorus in their livers increased. Epinephrine brought about no significant change in the distribution of acid-soluble phosphorus in the livers. In the livers of rats fasted 16 to 18 hours the inorganic phosphorus increased without significant change of the total acid-soluble phosphorus.

Arterial and Cerebral Venous Blood. The concentration of oxygen, carbon dioxide, p_H, lactic acid, sugar, total base, and inorganic phosphorus has been measured in the arterial and internal jugular blood of 50 intelligent, healthy, electroencephalographically normal young men. The respiratory quotient of the brain in this series is 0.99. This figure and data on the concentrations of sugar, lactic acid and oxygen in the blood entering and leaving the brain indicate that sugar is the principal source of energy for the brain *in vivo*. A small part of the sugar appears to be converted into lactic acid.

Strontium. Strontium may exist in the blood in diffusible form and probably combines with phosphate and with protein in non-diffusible compounds. Serum calcium is decreased after strontium is given. A few magnesium determinations suggested that magnesium acts independently of strontium. The studies on excretion showed that strontium given by mouth is excreted in large part in the feces and when injected intravenously may be absent from the feces and appear in the urine. Analyses of bone showed that strontium had been deposited there. Strontium in the diet of adult dogs did not produce a marked excretion of calcium but increased the retention of phosphate.

Pantothenic Acid in Metabolism. Pantothenic acid is concerned with the metabolism of pyruvic acid but the mechanism by which it participates in these reactions is unknown. Although most of the evidence indicates that pantothenic acid is concerned in the conversion of pyruvic acid to acetic acid, the possibility cannot be ruled out that it acts on some other metabolic step involving pyruvic acid or some intermediate derived from pyruvic acid.

Blood Proteins and Dietary Nitrogen. Plasma proteins have been shown to take part in metabolic reactions involving the incorporation of dietary nitrogen. The rate of this process in the plasma proteins when compared with that in the kidney, liver, and intestinal tract of the same animals is approximately the same.

JOURNAL OF HOME ECONOMICS

Vol. 34, September 1942

*Our heritage and its challenge. G. Branegan.—p. 416.
*Changing food habits. M. Sweeny.—p. 457.
*America's changing food consumption, 1909-1941. O. V. Wells.—p. 463.
*How many understand nutrition terms? H. C. Hamilton.—p. 476.
*New business jobs for home economists. G. C. Morrell.—p. 479.

A. H. E. A. Roll-Call. As the "outgrowth of work" of the A. H. E. A., organized in 1908, today about 38,000 college students are majoring in home economics in 350 colleges; and there are about 27,000 teachers of home economics. Twenty-six hundred extension and 2300 Farm Security workers are serving the rural homemakers of the country; and there are more than 5000 active dietitians, and 450 home economics research workers and 652 qualified members in the home economics in business department. Home economists are also serving in various social and health agencies. The reader-editor plan initiated this year to get reactions to various issues of the *Journal of Home Economics* from 46 members representing all parts of the

QUESTION: *Can I depend on the common foods to supply the vitamins and minerals my family needs?*

ANSWER: Yes, you can. By following a recently devised pattern for diet planning, you can be certain of obtaining adequate amounts of all the nutrients, the vitamins and minerals included, from the common foods (1). In this scheme the common foods are classified according to similarities in nutritive values into twelve groups; and the food requirements of the individual members of your family are expressed as quantities of these same twelve food groups. Hence, by including the specified quantities of foods from the various groups in the diet during a convenient period—say a week—an adequate intake of all nutrients is assured. Freedom of food selection within a group allows a flexibility in choice of foods as may be dictated by economic factors, local, racial, or religious customs.

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(1) 1939. Food and Life; Yearbook of Agriculture, U. S. Dept. Agriculture, U. S. Gov't. Printing Office—Washington, D. C.

1940. J. Am. Med. Assn. 114, 548

The Seal of Acceptance denotes that the nutritional statements in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.

country as well as all divisions and departments of the Association has produced most gratifying results. A separate research publication, financed on a subscription basis, has been suggested by several of the members. Looking toward the future, Dr. Branegan says: "I hope that our Association will give special study to postwar problems which may come upon us suddenly and for which we must be prepared .... Our immediate problem is to choose from among the many important things which need to be done, the ones which we, because of our special training, can do better than others .... Individually, we all need to include in each day's plan those activities which keep us in good physical and mental health and capable of carrying on through to victory and postwar adjustments."

Food Habits. "Eating what one wishes is a symbol of increasing personal independence as a child grows older, so that American mothers decrease their pressure on a child to 'drink his milk' and American adolescents assert their right to break as many food rules as possible. This fact has important implications for any program to alter food habits." Eating so as to have maximum strength to win the war should be emphasized in public appeals. Because of the possible alteration in the content of the market basket, due to failures in transportation, need of certain foods for export to our allies or to our armed forces abroad, the American housewife is going to need great flexibility. The further we get from any program of insisting upon particular, rigid formulas, the closer we will come to giving people the necessary flexibility for dealing with rapid and unexpected social change.

Food Consumption Trends. On the basis of a series of continuous estimates for the period 1909–41, the following trends are noted. The average annual consumption of food over the last three decades has been remarkably stable with relatively small variations as between years in terms of the total. Consumption of potatoes and cereal products, especially flour and corn meal, has shown a downward trend. The consumption of sugar increased about 25% between 1920 and 1925 and then continued at the same level through 1941. The consumption of meat and eggs has remained stable, while some increase in the consumption of beans, peas, and nuts is indicated. A steady increase is indicated for the consumption of the manufactured dairy products—condensed and evaporated milk, cheese, and ice cream with some increase in the consumption of fluid milk and cream following World War I and in the periods 1927–31 and 1937–40. Butter consumption has remained stable. The consumption of fresh fruit has remained stable, but with a considerable shift away from apples to citrus fruit. The consumption of vegetables has been increasing during the last two decades, with some slight shift toward leafy green, and yellow vegetables and tomatoes. Shifts since 1925 have been in line with the educational recommendations that have been developed from a nutritional standpoint. There has been a marked drift toward types of food and methods of distribution which lessen food preparation, *i.e.*, there has been a steady increase in the packaging of food and the services which grocers and others render in the form of cutting, trimming, slicing, and freezing before actually turning the food over to the customer.

Nutrition Terms. In answer to questions to show whether nutrition teaching is penetrating the homes of America, of the 3000 housewives included in the poll, 45% said that cooking in smallest amount of water possible is the best way to conserve vitamins; 58% considered vitamins "very important" in the foods they served; 20% of farm families and 48% of city families were taking synthetically prepared vitamins; 93% had heard of vitamin A (70% of these had no idea of its functions and 9% "knew it has something to do with eyes," while more city women than farm women associated it with color); 93% had heard of vitamin B_1 (12% thought it promoted energy and 10% recognized wheat cereals, whole wheat, and enriched breads as good sources, but only 5% were actually eating more whole wheat bread or whole grain than they had two years ago); 87% had heard of vitamin C but only 13% had any idea of its function (their consumption of citrus fruits and fruit juices had greatly increased and they were eating somewhat more tomatoes and tomato juice); vitamin D was unknown to 75% and only 18% had any idea of its functions; riboflavin was unknown to 95%, nicotinic acid to 61%. Chief sources from which women obtained their information were radio (62%), magazines (60%), and newspapers (33%). One-third of the interviews were made in December 1941 before the National Nutrition Program was well under way.

Jobs in Business. Perhaps before long metropolitan hotels will be seeking women in large numbers to work as food service directors and dietitians. Journalism is a new field of opportunity for the younger home economist whereas heretofore practically all of this work has been done by home economists with considerable commercial or academic experience. Best of the new business opportunities will go to those home economists with strong science backgrounds, especially in chemistry, physics, and mathematics.

JOURNAL OF NUTRITION

Vol. 24, July 1942

*The mobilization by alcohols of vitamin A from its stores in the tissues. S. W. Clausen, W. S. Baum, A. B. McCoord, J. O. Rydeen and B. B. Breese.—p. 1.

*A study of the ascorbic acid requirements of children of early school age. V. M. Roberts and L. J. Roberts.—p. 25.

*Chemical composition of twenty-two common foods and comparison of analytical with calculated values of diets. F. C. Hummel, M. L. Shepherd, H. Galbraith, H. H. Williams and I. G. Macy.—p. 41.

*The utilization of carotene and vitamin A in the rat. R. Treichler, A. R. Kemmerer and G. S. Fraps.—p. 57.

*A liver concentrate as a source of unrecognized vitamins required by the chick. L. R. Richardson, A. G. Hogan and R. J. Karrasch.—p. 65.

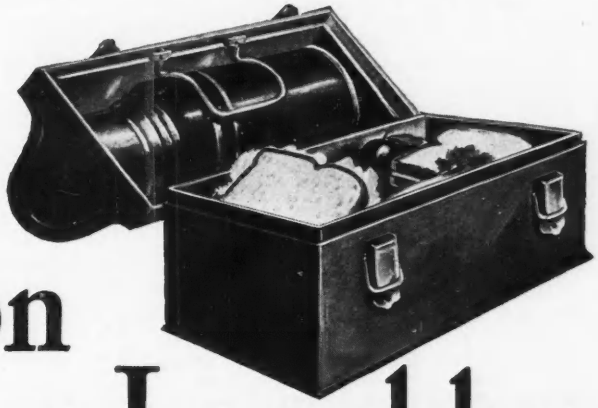
*The thiamine and riboflavin contents of citrus fruits. M. I. Bailey and A. W. Thomas.—p. 85.

Storage of pyridoxine in the rat. L. R. Cerecedo and J. R. Foy.—p. 93.

Vitamin A Mobilization. After the administration of methyl, ethyl, propyl and iso-propyl alcohols to dogs, there was a marked increase in the vitamin A concentration of the serum, the maximum rise usually coming within 24 hours. This effect was not due to increased absorption of the vitamin from the gastro-intestinal tract. Vitamin A was mobilized from its storage depots, such as the liver and body fats. It is suggested that vitamin A must be in the free form in order to be utilized by the tissues, and that it is stored as the ester.

Vitamin C Requirements. The vitamin C requirements of 5 children between the ages of 7 and 12 years were studied. Blood values and urinary excretion of ascorbic acid were determined on intakes ranging from 55 to 145 mg. Following each level a 300-mg. test dose was given to determine the tissue saturation. The amount "retained" by the body, the blood concentration, and the response to the test dose were used as criteria for judging the nutrition of each subject. The two youngest children required 65 mg. and the three oldest 75 mg. ascorbic acid, or sufficient to maintain blood levels about 0.7 mg. per 100 cc., and to allow for average "retention."

Analytic and Calculated Diet Values. Analyses of 22 common foods for nitrogen, fat, energy, positive and negative minerals and iron indicate that individual samples of a given food vary from values reported in the standard tables. Fruits and vegetables vary widely while milk is more constant in mineral content. When the analyses of composite diets are compared with dietary figures calculated from the literature, there is good agreement in the content of magnesium, potassium, phosphorus, sulfur, calories and



Lesson *in a* Lunchbox

WHY is it that ever since America was plunged into war people have been eating more bread?

Why is it that "standard equipment" in the lunchboxes of America's hardest workers is *bread* — bread in thick slices, bread in half loaves, bread in sandwiches, or just plain with cheese, meat, perhaps milk or tomatoes?

The answer is in the unquestioned fact that bread is *one of our best energy-foods*. Its high content of carbohydrates makes it a basic element in the diet of people who lead hard-working, active lives.

Today all of us are more active as a result of the war. If we are not actually working at harder jobs in factories, we are doing unaccustomed things that put extra drain on our energy. The businessman on air-raid warden patrol and the woman spending afternoons sewing for the Red Cross both expend more energy than they used to.

So there's this simple lesson in America's war-factory lunchboxes: *A more active America can well add more bread to its diet.*

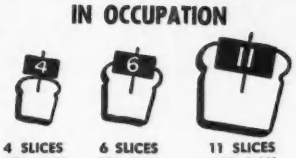
Bread is inviting, tempting to the palate, servable in almost countless ways. Especially valuable is the new enriched white bread. While retaining all the preferred flavor, texture and color of white bread, it supplies extra Vitamin B_1, niacin and iron as recommended by the Food and Nutrition Board of the National Research Council.

A man, stepping from moderately active to active occupation, can very well add two slices per meal to his bread consumption—as well as increasing the meat, potatoes and fats he eats.

Good nutrition fits the diet to the individual *and the occupation*. With all of us becoming more active, new diets are called for.

Base them on bread — for taste appeal, variety, convenience and especially the high food-energy value of this basic food.

HOW BREAD CONSUMPTION CAN GO UP WITH A CHANGE IN OCCUPATION



4 SLICES PER DAY | 6 SLICES PER DAY | 11 SLICES PER DAY

This chart shows a desirable increase of bread in the diet of a man as he steps from less active to more active jobs. These quantities are in addition to grain cereals and increases in the meat, potatoes, fats, and other foods consumed.

MOST GOOD BREAD IS MADE WITH FLEISCHMANN'S YEAST

The yeast used by most of the commercial bakers of the country is Fleischmann's. Many bakers enrich white bread by using Fleischmann's Enriched Hi-B Yeast, thereby insuring an even distribution into every slice of valuable quantities of natural Vitamin B_1, niacin and iron.

Bread *is basic*

fat. Sodium, chlorine and calcium may be significantly different from calculated values. In order to determine the mineral, energy or fat content of a composite diet or an individual food with the highest degree of accuracy, it should be analyzed under the conditions of the experiment in which it is to be used.

Utilization of Carotene. Vitamin A in cod liver oil was found to be most efficient for building up liver stores in rats: carotene dissolved in cottonseed oil was 59% effective and the carotene of alfalfa leaf meal was 21% as effective. Carotene in alfalfa leaf meal was found to be 35% as efficient as carotene dissolved in cottonseed oil for building up the rat's liver store of vitamin A.

Vitamin Concentrate. When chicks receive a ration containing no vitamins except those now recognized as such, they grow slowly and develop perosis. A water extract of beef liver contains all unrecognized vitamins required by the chick. A simplified diet has been prepared that is adequate for the growth of chicks.

Vitamins B_1 and B_2 in Citrus Fruits. The riboflavin content of certain citrus fruits as determined by the simplified method described herein is given. Based on the average juice volume of these particular specimens, the riboflavin is 20 μg. per orange, size 176, and 27 μg. per grapefruit, size 70.

PUBLIC HEALTH NURSING

Vol. 34, July 1942

*Can we produce enough food? O. V. Wells.—p. 361.

Vol. 34, August 1942

*Nutrition—today and tomorrow. M. M. Heseltine.—p. 428.

America's Food Needs. The four great needs for American food in this war are for the armed forces, our allies, for domestic consumption and for increasing our reserves. There will be enough old wheat at the end of this crop year to supply needs for an entire year ahead. Greatly increased quantities of rice are being shipped to Cuba but there should still be enough for home consumption. Larger supplies of all meat and chickens are in prospect. Supplies of fruits and vegetables will at least equal those of last year. From a nutritional standpoint, although our volume of food is large, it will not provide enough calcium, thiamin and riboflavin for an ideal diet.

Nutrition. The credits and debits of our national nutrition account are given. The nutritional status of the people of this country would be decidedly improved if all men and women in war industries could be as well fed as the armed forces. Providing a good meal at industrial plants is a step forward. The indiscriminate feeding of vitamins to the armed forces and industrial workers is not justifiable at the present time. The need for a continuation and extension of school lunch programs is greater now that mothers are spending more time away from home.

PUBLIC HEALTH REPORTS

Vol. 57, June 26, 1942

*A chronic deficiency of (1) calcium, (2) vitamin C, and (3) both calcium and vitamin C in monkeys. H. F. Fraser.—p. 959.

*Mouth lesions in monkeys associated with a chronic deficiency of (1) calcium, (2) vitamin C, and (3) both calcium and vitamin C. H. F. Fraser.—p. 968.

Vol. 57, August 7, 1942

*Domestic water and dental caries. V. Additional studies of the relation of fluoride domestic waters to dental caries experience in 4,425 white children, ages 12 to 14 years, of 13 cities in 4 states. H. T. Dean, F. A. Arnold and E. Elvove.—p. 1155.

Calcium and Vitamin C Deficiency. Symptoms of calcium depletion appeared in young monkeys after a year on a diet containing 10.2 mg. per 100 gm. diet. The bones showed a low-calcium content. Anorexia, loss of weight, loss of hair, hemorrhage of the gingiva and joints were conspicuous signs of chronic vitamin C depletion.

Mouth Lesions. Monkeys maintained for 11 months on a stock diet of natural foods and on a control diet of processed foods showed little or no evidence of gingivitis or peridontal disease while those chronically depleted of vitamin C or of both vitamin C and calcium developed extensive lesions. There was no evidence that a combination of chronic calcium and vitamin C depletion provoked any mouth symptoms which could not have been caused by vitamin C deprivation alone.

Dental Caries. A study of the intensity of dental caries attack disclosed striking differences among children of different cities which cannot be explained on the basis of hardness of water, hours of sunshine or gross similarities in diet. A general inverse correlation between the fluoride concentrations of the public water supplies in the 21 cities studied and the amount of dental caries was observed.

SCIENCE

Vol. 96, July 24, 1942

*Vitamin A in the diet of infants.—p. 10.

Vitamin A in Infant Diet. The average diet of babies from 3 weeks to 6 months does not supply enough vitamin A for maintaining optimal concentrations of the vitamin in the blood. Dark adaptation becomes impaired only when the diet is markedly reduced in vitamin A. The vitamin A stored in the blood is the best single criterion for the diagnosis of vitamin A deficiency. Optimal growth in rats occurred when the vitamin A content of the diet was 5 to 12 times the minimum requirement, optimal concentration in the blood when the vitamin intake was 12 to 25 times the minimum requirement, and good storage in the liver at an intake of 50 times the minimum requirement.

Food Habits

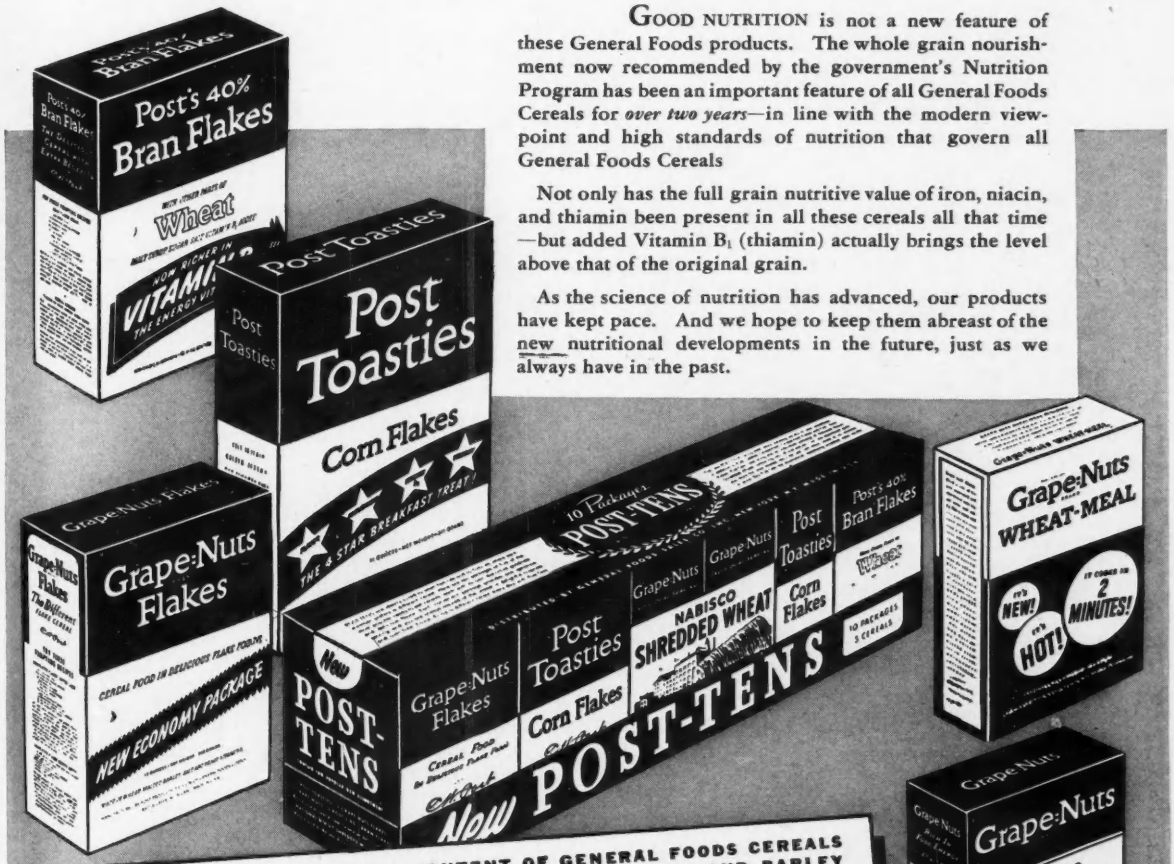
Yes, education can change human nature. A recent nutrition-week campaign is said to have improved the eating habits of the people of Indiana 10 per cent; a fourteen-year drive in the South in favor of green vegetables has cut the pellagra death rate to one-fourth of what it was; and a salad-shunning New Yorker discovers, to his amazement, that he has been consuming lettuce and raw carrots daily, and liking them, for almost a year now, all because his wife attended a food lecture.—*L. H. R.: The New York Times Magazine, September 13, 1942.*

For over two years . . . all General Foods Cereals have met—or surpassed—the important whole grain values now recommended by the U.S. National Nutrition Program

GOOD NUTRITION is not a new feature of these General Foods products. The whole grain nourishment now recommended by the government's Nutrition Program has been an important feature of all General Foods Cereals for *over two years*—in line with the modern viewpoint and high standards of nutrition that govern all General Foods Cereals

Not only has the full grain nutritive value of iron, niacin, and thiamin been present in all these cereals all that time—but added Vitamin B_1 (thiamin) actually brings the level above that of the original grain.

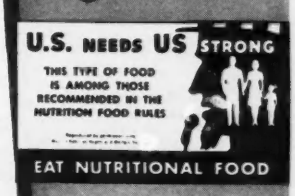
As the science of nutrition has advanced, our products have kept pace. And we hope to keep them abreast of the new nutritional developments in the future, just as we always have in the past.



THIAMIN, IRON, AND NIACIN CONTENT OF GENERAL FOODS CEREALS COMPARED WITH THE CEREAL GRAINS—WHEAT, CORN, AND BARLEY

	Serving	THIAMIN (VITAMIN B_1) U.S.P. Units	THIAMIN (VITAMIN B_1) % Daily Requirement* Adult	THIAMIN (VITAMIN B_1) % Daily Requirement* Child (6-12)	IRON Mg.	IRON % Daily Requirement*	NIACIN Mg. per 1 oz.	NIACIN % Daily Requirement*
THE CEREAL GRAINS								
Whole Wheat	1 oz.	43	13.0	17.0	1.3	13.0	2.0	13.0
Whole Corn	1 oz.	39	12.0	16.0	0.2	2.0	0.6	4.0
Whole Barley	1 oz.	54	16.0	21.0	0.6	6.0	1.2	8.0
GENERAL FOODS CEREALS								
Post's 40% Bran Flakes (a wheat bran cereal, with other parts of wheat)	1 oz.	50	15.0	20.0	1.4	14.2	2.92	19.5
Grape-Nuts Flakes (a wheat and barley cereal)	1 oz.	50	15.0	20.0	1.7	17.0	2.07	13.8
Grape-Nuts (a wheat, barley, and corn cereal)	1 oz.	80	24.0	32.0	1.4	14.0	1.98	13.22
Grape-Nuts Wheat-Meal (a hot whole wheat cereal)	1 oz.	100	30.0	40.0	1.8	18.0	1.49	9.93
Post Toasties (a white corn cereal)	1 oz.	40	12.0	16.0	.85	8.5	.878	5.85
Post-Tens	contain individual servings of Post Toasties, Post's 40% Bran Flakes, Grape-Nuts, and Grape-Nuts Flakes. For their thiamin, iron, and niacin content, see individual listings above.							

*Daily requirements for thiamin and iron based on minimum daily requirements specified by U. S. Food and Drug Administration. Values for niacin based on daily allowances recommended by Committee on Foods and Nutrition, National Research Council.



News Notes

Detroit Meeting, American Dietetic Association, October 19–22. Registration will begin at 9 a.m. on Monday, followed by a session of the House of Delegates at 10 a.m. and a Welcoming Luncheon at noon, when Mr. Malcolm Bingay will speak, followed by Dr. Margaret Mead, Chairman, Committee on Food Habits, Division of Anthropology and Psychology, National Research Council, who will discuss "Food Habits and Dietary Patterns." Dr. Jules H. Masserman of the University of Chicago will address the Opening Session on "Civilian Morale and Victory," followed by Dr. Robert S. Goodhart, Chairman, Committee on Nutrition in Industry, National Research Council, speaking on "The Feeding of Industrial Workers." State presidents will convene following the General Session, and the evening program will be devoted to discussions of "The Contributions of Dietitians in Wartime."

Tuesday gatherings will begin at 7 a.m., consisting of reunion breakfasts and later, group sessions concerned with Administration, Child Nutrition, and Diet Therapy, followed by a round table discussion in which Army dietitians will participate and a General Session on "Nutrition in Health and Disease" with the following program: "Recent Contributions to the Field of Vitamins," Dr. Howard Lewis; "Diet in Relation to Hepatic Physiology and Pathology," Dr. Frank Mann; "The Trace Elements," Dr. Arthur H. Smith. In the afternoon the subject of "Nutrition at Work" will be discussed as this applies: in the American Red Cross; in public health; in the Office of Civilian Defense; in industry; in schools; and in hospitals. At the same time another group will convene for a round table discussion of "College Food Service." The afternoon sessions will be followed by a Business Meeting. In the evening, "World Nutrition Problems" will be discussed at a meeting open to the public at which Mary I. Barber, Food Consultant to the Secretary of War, and Dr. Franklin C. Bing will speak.

Four early morning breakfast sessions on Wednesday, concerned with Professional Education, the Food Clinic, and Community Education, will precede other group meetings at 10:30: namely, "Directors of Approved Courses and Heads of Home Economics Departments"; "Dietitians in Public Institutions"; and canteen and nutrition round tables. In the afternoon the subject of "The Role of Food in the Present Emergency" will be presented at a General Session, and later four separate group sessions will discuss "Teaching Responsibilities of the Dietitian"; "Industrial Food Problems," and other topics of interest.

Meetings on Thursday will begin at 8:30 a.m., at two of which "Administration Problems of the Small Hospital" and the "School Lunch" will be discussed, followed by sessions at 10:30 on "Community Health"; "Food Control"; and the "Student Dietitian." At noon state presidents will convene for luncheon. The formal program will end with the Thursday afternoon sessions when the subjects to be discussed will be presented before three different groups, followed by a late afternoon gathering at which "A Work Program for 1942-43" will be outlined.

The list of state dietetic association delegates to the annual meeting appears on the officers' page of each issue of this JOURNAL. The business office should be notified immediately regarding any omissions or changes in this list as it now stands.

Dietitians Direct R.C.A.F. Station Messes. According to a recent letter from Grace Sharpe of the Canadian Dietetic Association, approximately thirty dietitians are now directly responsible for the food service at the R.C.A.F. stations. Miss Sharpe states that the "work requires dietitians with good food standards, attractive personality and experience." She also reports that many more dietitians are needed for this work and that Laura C. Pepper, R. 731, Confederation Building, Ottawa, receives inquiries for positions available to dietitians. Information about membership in the Canadian Dietetic Association may be secured from Nancy Shepard, Royal Victoria Hospital, Montreal.

Nelda Ross Urges Dietitians to Enlist for Army Service. An article by Emma Bugbee, ace woman reporter of the New York *Herald Tribune*, appeared August 24 under the above heading. In the interview Miss Ross is quoted as saying that the government has issued a call for at least 400 trained dietitians and that the American Dietetic Association is helping in every way possible to recruit this number. Miss Ross added that the dietitians have no Army rank at the present time, but that they are glad to serve their country in the category in which they will be most helpful. She revealed that dietitians employed by the Medical Department of the Army are required to wear white hospital uniforms when on duty, and that a street uniform, consisting of blue tailored skirt and jacket with light tan shirt and red tie, is regulation dress for dietitians going overseas, also a winter overcoat and cape. The news story continued with an explanation by Miss Ross of the problem of recruiting dietitians for work in civilian fields and persuading young women now in college and high school that the future holds great opportunities for the dietitian. She stated that she hoped young women would not be deluded into thinking that the best opportunities in the field would be open to them without a rigorous course of training, and mentioned also that the leading hospitals require dietitians to have a four-year college course with major study in dietetics plus one year of graduate training work.

Nutrition Exhibits. The Nutrition Division of the Office of Defense Health and Welfare Services, Federal Security Agency, Washington, has printed a revised edition of a folder entitled "Nutrition Exhibits" prepared by the Bureau of Maternal and Child Health, Pennsylvania Department of Health. Copies of this are available on application to the first-mentioned agency. As the title implies, the contents outline the technique of arranging a number of exhibits under such general heads as: "Enriched Flour and Bread"; "Hot Cereal *vs.* Cold Cereal"; "Eat More Greens";

This "Guest-Quality" Margarine saves money *without* sacrificing important nutrition—or flavor-goodness

ALLSWEET MARGARINE is made of pure, nutritious oils from American farms, scientifically mixed with pasteurized skim milk. Thus it is rich in food energy. And to every pound, 9000 USP units of Vitamin A are added to fulfill the accepted nutritional standards of a spread for bread. Allsweet bears the Seal of Acceptance of The American Medical Association's Council on Foods.

Allsweet's flavor is so fresh and delicate and tempting that most people cannot tell it from a costlier spread.

And Allsweet can save many dollars on the food budget. This fine, tempting, nutritious margarine meets the requirements for institutions in which the use of margarine has been authorized. Your regular Swift & Company salesman can supply you.

"Eat More Vegetables"; "A Good Lunch"; "Vitamins"; "Minerals"; and "Get Your Money's Worth." Further information is included concerning illustrative material to use at these exhibits. For instance, a set of eight charts in color, entitled "Vegetables for Victory," may be obtained for 50 cents each upon application to the Philadelphia Child Health Society, 311 South Juniper St., Philadelphia.

American Red Cross-Harvard Field Hospital Unit. Mrs. Charlotte Raymond Rothwell writes on July 10 that "after a long period of waiting for a priority order, our Unit Recreation Hut Kitchen has been equipped with an electric stove and cooking utensils purchased with the money sent to me by the American Dietetic Association after the St. Louis convention. I cannot tell you what a great addition this has been to the comfort and enjoyment of the entire unit. Our Recreation Hut is used so much from morning coffee until midnight snacks that I wonder now how we ever managed to cook with our one small electric hot plate. Speaking for the entire unit, I extend grateful thanks. On July 15, the U. S. Army is taking over our hospital and the American Red Cross-Harvard Field Hospital Unit ends its identity. The hospital will continue to serve as an epidemiological research center for the American Forces in the British Isles." Mrs. Rothwell adds: "Perhaps you may be interested to know that Rose Simmonds has just been appointed under Dr. Drummond at the Ministry of Food to organize a bureau similar to our Bureau of Home Economics. I hope to be able to do something to help in this project."

Nutrition Foundation Announces New Publication. This organization, sponsored by food manufacturing concerns, and described in previous issues of this JOURNAL, has announced the founding of a monthly journal of "interpreted progress in the science of nutrition" to be called *Nutrition Reviews*. According to a statement by Dr. Charles Glen King, scientific director of the Foundation, the purpose of the publication is "to bridge the gap between basic research findings and their acceptance with confidence, on the part of those who deal with the public, to enable them to keep abreast of current progress and to have available an unbiased, authoritative review of current research literature. . . . The editorial staff and advisory committee have been carefully selected so that the publication will merit the full confidence of the medical profession and other professional people who work directly with the public in the field of nutrition, including dentists, health workers, teachers, dietitians, science writers and food technologists." Dr. Frederick J. Stare, assistant professor of nutrition and biochemistry at Harvard University, was named editor, and the editorial advisory committee will include: Drs. G. R. Cowgill, C. A. Elvehjem, H. C. Sherman, and R. M. Wilder. Among the assistant editors will be: Drs. Esther L. Batchelder, F. C. Bing and R. S. Goodhart. The Foundation's fund for the support of the new publication and nutrition research has now reached a total of $923,500.

George A. Sloan, president of the Nutrition Foundation, reports that the Foundation is now supporting 36 nutrition research studies in 22 universities and that additional study awards will be made this fall. The studies are divided equally among three kinds of projects: Those having a direct relationship to the war emergency, those having a direct relationship to public health, and those that primarily advance the frontiers of the science of nutrition. In regard to the Foundation's patent policy, Mr. Sloan has announced that if patentable inventions should be made in the course of research work supported by the Nutrition Foundation, these inventions will be handled in such manner as to bring the maximum benefit to the public, and that placement of grants will not be restricted or conditioned by differences of viewpoint regarding patents.

Nutrition Values of Canned Food. A research program for the study of nutritive values of canned foods, developed by a committee representing the National Canners Association, assisted by scientific advisers both inside and outside the canning industry, has been inaugurated with the placement of financial grants with the University of Arizona and University of Wisconsin, with others expected in the near future. The first phase of the program contemplates the assay of about twenty-five products, including fruits, vegetables, and sea-foods, for six vitamin factors (A, C, thiamin, riboflavin, niacin, and pantothenic acid). Assays will also be made for important minerals in laboratories connected with the canning industry. It is estimated that about 30,000 samples, representative of sections in which they are canned, will be tested during the course of this year's program. In addition to the vitamin and mineral analyses, support will be given to other studies to determine the effect of storage on vitamin content of representative products, and to make a series of correlation tests which will compare the results from methods used for assays and those from standard feeding tests. Other investigations will be concerned with the distribution of vitamins in solids and liquid content, and the changes which may result from preparation of the foods for the table.

As originally contemplated, the plan for nutrition studies was divided into three phases: to assay a representative variety of canned foods for the essential nutrition factors, and to determine the ranges of such factors over a period of years; to undertake technological research which might lead to better retention of the factors in products where there is an indication of reduction as a result of the canning procedure; and to undertake feeding studies to demonstrate in a practical manner the values of canned foods in the diet.

Formulation of the program was under the immediate direction of an executive committee under the chairmanship of E. J. Cameron, Research Laboratories, National Canners Association. In formulating the program, the announcement adds, "the committee had the advice and assistance not only of scientists connected with the canning industry but also authorities in the nutrition field who are not connected with the industry." It is expected that within the near future a scientific advisory group will be appointed. An advisory committee representing the canning industry has been named, which includes Dr. Lillian B. Storms, Gerber Products Company.

Nutrition Institute in Philadelphia. According to Mrs. Frances Livingston Hoag, 4111 Walnut St., Philadelphia, nutritionist for the Philadelphia Dairy Council, a nutrition institute will be held in Philadelphia early in 1943 under the auspices of the Philadelphia Dietetic Association. Further details will appear in coming issues of this JOURNAL.

Drexel Institute Offers Graduate Course in Dietetics. According to the New York *Times* for August 23, an announcement has been made by George P. Rea, president, that a one-year graduate course in dietetics for graduates of liberal arts colleges will be given by the School of Home Economics of Drexel Institute of Technology. Organized to meet the many demands of industry and government for specialists in food and nutrition, the curriculum, it is stated, will include courses in food chemistry, biochemistry, nutrition, food production, marketing, quantity cookery, institutional administration, institutional buying, and equipment problems. Emphasis will be given to special problems of diet in disease, and to hospital administration problems. Conforming to the Drexel Institute educational philosophy, the course will include practical experience, and in the food production units of the college, students will be required to assume responsibility for management of food production and labor.

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Which one of the eight essential types of food is safe without refrigeration? What has refrigeration to do with the Wartime Health Program? How should a refrigerator be cared for to make it last for the duration? What is a condenser . . . an evaporator . . . a compressor? Exactly how does a mechanical refrigerator work, anyhow?

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Wartime shipping conditions may at any time make it impossible to secure fresh fruits for supplying Vitamin C in daily diets.

You can give your patients the food value of fresh fruits, at less than fresh fruit cost, with V-C-B. V-C-B, hermetically sealed in oxygen-free containers, keeps indefinitely; requires little storage space.

V-C-B is a water soluble powder, which, when dissolved as directed, produces a pleasant fruity beverage approximating the caloric value and Vitamin C potency of fresh orange juice. The standard cost is only 54¢ a gallon, of which a 4-oz. liquid portion provides individual daily requirements (1000 International Units) of Vitamin C and 50 calories. Valuable also for fortifying fruit juices and beverages with Vitamin C.

V-C-B is economical: one standard No. 3 can contains approximately the same Vitamin C as 1/2 crate of oranges, and requires only 1/32 the amount of storage space. V-C-B is always fresh; there is no spoilage or waste; and it eliminates the time-wasting job of squeezing large quantities of oranges.

V-C-B and all advertising claims for it are accepted by the Council on Foods of the American Medical Association. Because of its recognized advantages many State Institutions have adopted V-C-B as a standard for administering Vitamin C. These institutions are saving hundreds of dollars yearly with V-C-B. Similar savings can be brought about in your institution through use of V-C-B. If you have not tried V-C-B, send for free sample and complete information TODAY.

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Please send, free of charge, 3½-ounce sample of V-C-B (makes 1 quart of Vitamin C Beverage).

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Refresher Course for Dietitians. The refresher course given at Teachers College, Columbia University, July 6–August 15, announcement of which was made in the March JOURNAL, included assistance by the students in and observance of the routine work in the various units of the cooperating hospitals, such as: main kitchens, private patient service, diet kitchen, ward service, dining rooms, etc. Lectures covered both administrative and therapeutic phases such as: relation of the dietitian to personnel medical department, selection of personnel and management, dishwashing and breakage, budgeting and accounting, and kitchen layout and equipment. Seminars and lectures, given by physicians and dietitians, covered the subjects of the newer knowledge of nutrition, infant feeding, psychological aspects of child feeding, nephrosis in children, diet in allergy, and diet in diabetes, tuberculosis, and diseases of the kidney.

Demonstrations included waitress training classes, and grading of fruits, vegetables, and meats by inspectors of the Bureau of Agricultural Economics. Field trips were made to Good Housekeeping Institute, New York Hospital, wholesale meat and vegetable markets, the Marine Hospital at Ellis Island, and the new 3000-bed Hospital for Chronic Diseases on Welfare Island. At the Army hospital at Fort Jay on Governors' Island, through the courtesy of Col. S. M. Corbett, the students were shown the hospital kitchens and dining rooms. They ate lunch in the soldiers' mess and were shown through the cooks and bakers school through the courtesy of Sergeant Del Yuchio in charge of this school. Of especial interest here was the field practice demonstration showing rolls being baked in an oven heated by logs.

Students attending the course, who received 6 credits from Teachers College, were: Bernice Hopkins, Gorgas, Canal Zone; Dorothy Miller, Abilene State Hospital, Texas; Wilma Wenzel, Charity Hospital, New Orleans; Gussie Tabb King, Georgia State College for Women, Milledgeville; Virginia Bailey, Gillett State Hospital, St. Paul, Minnesota; Ethel Louise Bevey, Newark Hospital, Newark, Ohio; Mary Frey, Bashline Rossman Hospital, Grove City, Pennsylvania; Margaret Fritschel, formerly at St. Joseph's Hospital, Wayne, Indiana; Anne Hackett, De Graff Memorial Hospital, North Tonawanda, New York; Melvine Larson, Minnesota School and Colony, Fairibault, Minnesota; Zula Threkeld, Hinds Junior College, Raymond, Mississippi; Lois Watts, Grace Hospital, Raymond, Mississippi; Mildred Young, formerly at Downer College, Milwaukee, Wisconsin; and Charlotte Aronsohn, Jewish Memorial Hospital, New York.

Student Dietitians Attend Graduation Dinner. The staff of the Nutrition Department, Columbia-Presbyterian Medical Center, gave a graduation dinner June 25 in the Neurological Institute staff dining room, honoring the student dietitians who were completing their training courses in the summer or early fall. Nelda Ross, director of the Nutrition Department, who presided, reviewed the history of the department since 1909, the date of the first available records. Ida Jean Kain, author of *Prescription for Slimming*, and editor of a syndicated column, "Your Figure, Madame!" the guest of honor, spoke on "Making the Principles of Good Nutrition Practical and Attractive," pointing out that a healthy, attractive appearance is essential if the dietitian is to serve as an example of the potentialities of optimal nutrition to others. Those who are to complete their training courses and receive certificates and gold A.D.A. membership pins include: Catherine Morris, Michigan State College; Mary Adriani, University of Connecticut; Virginia Monahan, Kansas State College; Helen Siekman, University of Cincinnati; Emma Mike, University of Maryland; and Lily Karki, Simmons College.

The Food Situation. The August 29 issue of *News Letter* of the National Restaurant Association called attention to a further reduction in the amount of coffee available to American consumers, effective September 1. The base coffee quota for wholesalers, retailers and other wholesale receivers was reduced from 75 per cent to 65 per cent by amendment to WPB Order M-135-c. Counties which have been granted additional coffee because of population increase will continue to receive larger quotas, but their quotas will be passed on the new base rate. In regard to the meat situation, the *News Letter* stated that stewards have gone on record as favoring "meatless days" to which the government has been giving consideration, but that meat dealers were opposed to this solution. The American Meat Institute has claimed that the meat shortage is largely temporary. Fresh apples may again be featured as a Victory Food Special during October 22–31.

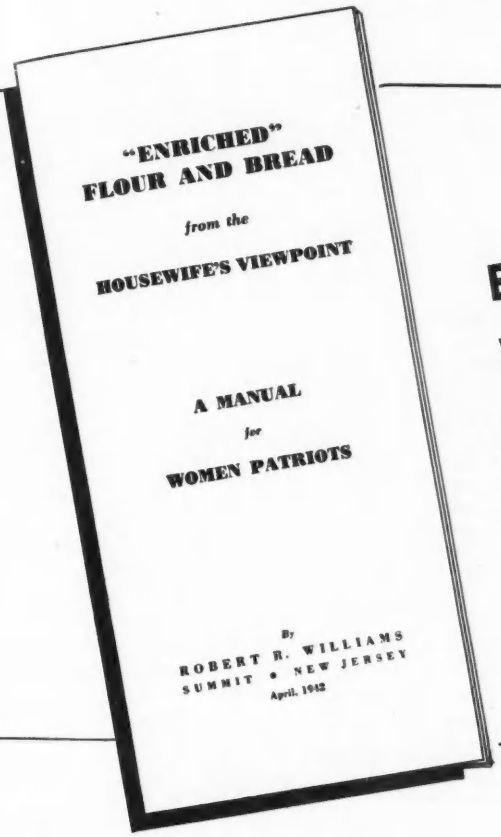
Buying Poultry and Eggs. A booklet on this subject, prepared by the department of research of the Household Finance Corporation and Subsidiaries, gives complete information about specifications of different grades and kinds of poultry; how poultry is graded and labeled; smoked and frozen poultry; methods of preparing, cooking and carving poultry; judging eggs for freshness; comparisons of fresh, cold storage, and "refrigerated" eggs; grading and labeling of eggs in the United States and Canada; frozen and dried eggs; care of eggs in the home; and egg cookery and preservation of eggs in the home. The information is based on opinions and data from authorities in the field, and a list of these and additional references is given in the back of the booklet.

Permanent Exhibit on Nutrition. For the second time, Cleveland Health Museum has received a grant from the Thomas H. White Trust Fund in the amount of $1100. This grant has been made to establish a permanent exhibit on nutrition and health at the Museum. The opening of the exhibit is scheduled for the early part of January, 1943.

"Eating for Victory" Luncheon. Nelda Ross, President of the American Dietetic Association, was a guest at an "Eating for Victory" luncheon sponsored by the Pan-American Coffee Bureau at the Waldorf-Astoria, New York, August 25. The meal was planned by Mrs. Ida Bailey Allen, home economics consultant for the Pan-American Coffee Bureau, and consisted of five courses prepared "entirely of left-overs," including a supreme of frosted fruit, chicken vegetable soup with giblet balls, diced ham and veal creole, savory baked suet pudding, coffee gingerbread Latino, and coffee. The additional cost for new items was estimated at 69 cents for a family of four. Dr. Louise Stanley, chief, Bureau of Home Economics, U. S. Department of Agriculture, was the principal speaker.

Wartime Chemical Show and Parley. It is anticipated that this meeting, sponsored by the Chicago Section, American Chemical Society, at the Hotel Sherman, Chicago, November 24–29, will be attended by approximately 20,000 from all sections of the country, including research chemists, executives of industrial plants, engineers, purchasing agents, government specialists and others.

Fire Prevention Week. October 4–10 has been designated by presidential proclamation as Fire Prevention Week, and the U. S. Office of Civilian Defense which is responsible for civil protection in wartime has been requested to assume leadership in the observance. As stated in the proclamation, uncontrolled fire, even in normal times, is a national menace. Today, when every machine is being taxed to its fullest productive capacity, when new hands are working with unfamiliar tools and when enemy agents are



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By a Noted Authority

★

Here is a new ally to help dietitians who have been encouraging women to make the daily use of Enriched White Bread a household custom.

It is *A Manual For Women Patriots*, prepared by Dr. Robert R. Williams—eminent scientist—who, among other things, is the discoverer of synthetic thiamine, and a member of the Food and Nutrition Board of the National Research Council.

This manual, written for women in the simple, factual language that gives added emphasis to important ideas, tells about the origin of enriched flour and enriched white bread—the methods for enrichment—the benefits—the economy. It discusses also the significant topic of sensible dietetics in wartime.

By arrangement with the author, we have been privileged to distribute many thousands of copies of this excellent booklet, on request, to members of state and local nutrition committees.

Copies will gladly be sent without cost to dietitians who desire them.

Department of Nutrition

AMERICAN INSTITUTE OF BAKING

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AD 9

seeking to hinder production by every possible means, it is essential that destructive fires be brought under stricter control. The proclamation urges the cooperation of state and local governments, of educators and civic groups, the press, radio, etc., with a view to promoting widespread realization of the dangers of fire and knowledge of the methods of controlling it. Posters entitled "Today Every Fire Helps Hitler," at $1 per hundred; "Fire is the Friend of the Enemy," at 50 cents per hundred; and "Inspect, Detect, Correct Fire Hazards," at $1 per hundred are among the offerings of the National Fire Protection Association, 60 Batterymarch St., Boston. Free samples of booklets entitled "Safeguarding the Home Against Fire"; "Safeguarding the Nation Against Fire"; "Danger in Your Home," and many others may be obtained upon application to the National Board of Fire Underwriters, 85 John St., New York.

Canned Fruit Cocktail. As announced by the Federal Security Agency under date of August 18, standards of quality and fill of container for canned fruit cocktail have been established under the Federal Food, Drug, and Cosmetic Act, to become effective November 16, 1942, and have been published in the Federal *Register* of August 18, copies of which may be obtained from the Superintendent of Documents, Government Printing Office, Washington, at 10 cents each. The standard of identity for canned fruit cocktail was published in the *Register* of July 21, 1942.

Food Poisoning from Cream Pie. An outbreak of food poisoning in New York State was traced to contaminated cream pie served in an industrial plant cafeteria, according to *Health News*. Examination of the pie showed contamination of both the cream filling and the meringue with *Staphylococcus aureus*, and it was learned that the pie was about 18 hours old when the first person affected by it was served. It was definitely established that no food handler in the kitchen was ill but that contamination was caused by unsanitary cleaning practices.

Nutrition and Industry. Mame Tanner Porter, nutritionist for the Department of Welfare, State of New York, has been temporarily transferred to duty under the direction of the State Nutrition Coordinator. Miss Porter will visit plants in New York State in the interests of the Industrial Nutrition Program.

Marie Casteen Goes to Washington. Word has been received that Marie Casteen, treasurer of the American Dietetic Association, for many years with the Hotels Statler System and more recently with Standard Brands Incorporated, New York, has been called to Washington to assist Dr. Robert S. Goodhart in a national program concerned with industrial nutrition.

Helen Burns Appointed Superintendent of Dietitians. Word has been received that Miss Burns, for several years chief dietitian at Walter Reed Hospital, has been appointed Superintendent of Dietitians in the Office of the Surgeon General, Washington.

Hazel Munsell Receives New Appointment. Dr. Munsell, noted authority in nutrition, has been appointed assistant professor of chemistry in the School of Tropical Medicine, San Juan, Puerto Rico, where she will work with Dr. Ramon Suarez, head of the Department of Clinical Medicine. It is understood that Dr. Munsell will be engaged chiefly in investigations of certain diseases encountered in Puerto Rico that may have their origin in nutritional deficiencies. Dr. Munsell left by plane from Miami September 16.

Recent Announcements. Marion Woolworth, formerly of Children's Hospital, Boston, has enlisted in the WAACs. Eleanor Sprague, formerly dietitian, St. Luke's Hospital, New York, has been assigned to duty with the New York Hospital Unit (9th General Hospital, U. S. Army) which will enter foreign service. Miss Sprague received her B.S. degree from Middlebury College, Vermont, and her student training at Peter Bent Brigham Hospital, Boston, and prior to her appointment at St. Luke's was connected with the American University Hospital, Beirut, Syria. She is the author of "Escape from Syria," recently published. Ruth Carpenter, graduate of Florida State College for Women, who received her student dietetic training at University of Michigan Hospital, and since 1936 has been assistant dietitian at the University Cafeteria, University of Tennessee, has been appointed dietitian at the Tennessee Eastman Corporation, Kingsport, Tennessee. Merle Sellers has been appointed assistant dietitian, University of Alabama, Tuscaloosa. Gladys Everson, who is studying for the Ph.D. degree under Dr. Helen Parsons at the University of Wisconsin, has been appointed head, Nutrition Division, Wayne University.

Harriet Elliott Receives New Appointment. Miss Elliott, well known to members of the American Dietetic Association as dean of the Woman's College of the University of North Carolina and as member of the National Defense Advisory Commission in 1940, has been appointed associate field director of the War Savings Staff in charge of women's activities, according to the *Home Front Journal*, published as a contribution of the *Ladies' Home Journal*. Mrs. Genevieve Forbes Herrick, formerly special assistant in the WAACs, has resigned to serve as special assistant on the War Savings Staff.

G. I. Can Put to New Use. This can, practically the only piece of culinary equipment now in use that is familiar to the Army dietitian of the first A.E.F., is now serving to carry dry foods such as flour, sugar, and rice, for shipment overseas.

News in the Food Field. According to Philip H. Van Itallie, nutrition editor of *Food Field Reporter*, the two rumors now prevalent regarding the situation in the canning industry are not founded on fact. The first of these, that the tinplate situation is much worse than generally believed and that the public will, as a result, soon have to eat mostly dehydrated foods, can be dispelled to some extent by reference to a report of Dr. E. H. Lueck, research director of American Can Company, in the above-mentioned publication for June 22 in which it is stated that the can industry will receive about 17,500 tons of tin yearly for the next five years and that in spite of the need for adjustments canning will go on. The second rumor, to the effect that the Government is about to start a nationwide publicity campaign to accustom the public to the idea of having to eat dehydrated foods, is contradicted in a statement by Gove Hambidge of the Agricultural Research Administration: "We are not doing anything of the sort. We are of course encouraging home dehydration as one means of saving food, and commercial dehydration because of its vital importance in supplying food to our armed forces and our allies; for the present, however, we are having to scratch gravel to get enough dehydrated foods for the latter purpose, and we would hardly try to popularize these foods when there is no immediate prospect of supplying any popular demand."

Oklahoma Dietetic Association. The graduation exercises for the 1942 class of student dietitians of the University Hospitals, Oklahoma City, were held August 24. Dr. Gregory Stanbro was the guest speaker; Dr. George N. Barry, medical director, presented the diplomas; and J.

"At least two fruits daily"

says Uncle Sam

. . . and one of them can still be Libby's field-ripened pineapple from Hawaii!

• As a Home Economist, you have an important part to play in our Government's nutrition program. You are a liaison officer—interpreting the Official Food Guide to students and homemakers in terms of everyday meal planning.

In this matter of two fruits daily, as recommended by the Guide, you'll naturally consider *variety*. So—for variety *plus* flavor and color appeal—it's good news to know you still can get Libby's fine Hawaiian Pineapple.

Libby's Pineapple, cut when fully sun-ripened and *quickly* packed, is famous for its luscious tangy flavor. With its good content of Vitamins B_1 and C, it makes a valuable contribution to nutritious meals. And please remember Libby's descriptive labels—a real help in wise buying.

Libby's
FANCY HAWAIIAN SLICED PINEAPPLE
U.S. NEEDS US STRONG
PINEAPPLE
THIS TYPE OF FOOD IS AMONG THOSE RECOMMENDED IN THE NUTRITION FOOD RULES
EAT NUTRITIONAL FOOD

• Fruit desserts, made with Libby's Pineapple, supply needed vitamins and taste simply grand. With small, thin pancakes, serve this: Drain juice from a No. 2 can Libby's Crushed Pineapple; heat juice and thicken with 2 tbsps. cornstarch mixed with 2 tbsps. water. Add 1 tbsp. lemon juice, 1 tbsp. orange juice, and 1 tsp. grated orange rind. Mix with the pineapple and serve. (Serves 6)

Libby's HAWAIIAN PINEAPPLE
Sliced · Crushed · Tidbits and Juice!

Marie Melgaard, director, Dietary Department, presented the pins and caps. The graduates include: Betty Boehm, Kansas State College; Mary M. Quinn, Montana State University; Esther L. Burgett, Oklahoma A. and M. College, appointed to St. Mary's Hospital, Kansas City, Missouri; Alcy Walker Goldsmith, University of Oklahoma, appointed to the University Hospitals, and Solveig C. Peterson, University of North Dakota, appointed to Torney General Hospital, Palm Springs, California. Four other students received their caps and will receive their diplomas and pins in January: namely, Myra Barberousse, Louisiana Polytechnic Institute; Catherine M. Bardsley, Oklahoma A. and M. College; Opal Howard, Texas State College for Women; and Carol M. Swain, State University of Iowa.

Juanita Chandler was married to Mr. Garland Hope of Kansas City, Missouri, May 17, and has resigned as first assistant dietitian at the University Hospitals.

Graduation exercises for the fourth class of student dietitians at St. Anthony Hospital, Oklahoma City, were held in the chapel August 30, followed by a dinner and reception in their honor. Appointments of the graduates not previously announced are: Arlene Grinella, assistant dietitian, Wesley Hospital, Oklahoma City; Kathryn Drone, Veterans Hospital, Fayetteville, Arkansas; and Roberta Foster, St. Thomas Hospital, Nashville. Students who began their training September 1 are: Sister Mary Josephine, Mount Mary College, Salina, Kansas; Lorraine Dailey, Rosary College; Danna Thompson, Iowa State College; Elaine Magdel, Clarke College, Dubuque, Iowa; and Geneva Gales, St. Scholastica, Duluth.

Mrs. Esther Dinwiddie Phillips has resigned as dietitian at the Y.W.C.A. Cafeteria, Oklahoma City, to join her husband at McAlester, Oklahoma.

Mrs. Charles Bolar has resigned as assistant, Anna Maude Cafeteria, Oklahoma City, to join her husband at Fort Riley, Kansas. She is succeeded by Mrs. Dewey Bell, a graduate of Oklahoma A. and M. College.

Philadelphia Dietetic Association. Officers for the coming year are: president, Lillian F. Hack, St. Christopher's Hospital for Children; vice-president, Marjorie Simms, Drexel College; secretary, Carol Carison, Beaver College; and treasurer, Bertha Brozenske, Jefferson Hospital. The Executive Committee includes: Elizabeth Miller, Philadelphia General Hospital; Henrietta Pribnow, Jewish Hospital; and Eleanor Bigelow, Visiting Nurses' Association. The committee chairmen are: History, Evelyn Carpenter; Hospitality, Maxime McCowan; Membership, Eleanor Meagler: Nominating, Zetta Jackson; Program, Miriam E. Gaige; and Publicity, Frances E. Selzer. Four new committees have been added: namely, the Administration Section, with Lila G. Hainer as chairman; Diet Therapy, Martha Tarbox, chairman; Community Nutrition, Martha Alderman Hunscher, chairman; and Professional Education, Miss Farrinkop, chairman.

Mary Delandro, Eugenia Kerans, Betty Low Mohan, Catherine Bertin, Frances Matuschak, and Henrietta Hassentlug have recently completed the student dietitian course at Jewish Hospital. Miss Delandro is now assistant dietitian, Pennsylvania Hospital, and Miss Matuschak is at Fairmount Hospital, Fairmount, West Virginia.

Virginia M. Bounds has resigned as metabolic dietitian, Philadelphia General Hospital; and Leona Shapiro as therapeutic dietitian, Jewish Hospital.

Mary Ann Aselin has announced her marriage to Mr. Phillip John McCarthy, and her appointment to the dietary staff, Presbyterian Hospital, New York.

June Mellinger, University of Alabama, and Carolyn Bishop, University of Wisconsin, both graduates of the New York Hospital Student Dietitian Course, are now assistant dietitians, Philadelphia General Hospital.

Recent graduates of the Philadelphia General Hospital Student Dietitian Course are: Hazel Strope, Zetta Thomas, and Martha Bateman. Miss Strope has been appointed assistant dietitian, Bryn Mawr Hospital; Miss Thomas, dietitian, Allegheny Hospital, Pittsburgh; and Miss Bateman, in charge of the dietary department of a small hospital at Macon, Georgia.

Recent appointments include Marjorie Bachelor, Beaver College, to Bryn Mawr Hospital.

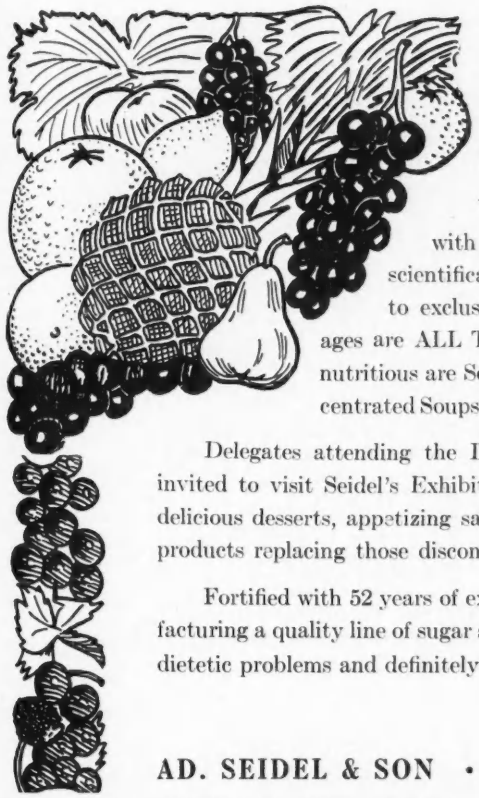
News from our Advertisers and Exhibitors. Mr. Robert R. Helmerichs of the *Cream of Wheat Corporation* has announced that their new vitamin chart is just off the press and that all dietitians teaching Red Cross classes or who have any other use for a quantity of these charts may receive copies upon application to the Cream of Wheat Corporation, Minneapolis. This very legible, well-arranged chart gives information on all the known vitamins, including their functions and sources.

The *United Fruit Company* announces that it has made provisions so that all children suffering from celiac disease, the nutritional disturbance of late infancy and early childhood for which a diet of bananas is the indicated therapy, will receive priority for a necessary supply of bananas, despite the present shortage of this product. The medical literature indicates that bananas have been used successfully in this condition for about 18 years. It has been suggested that the softness of the fiber, the bulky residue caused by the swelling of pectins, the alkalizing action upon the intestinal contents, and the slowness with which the carbohydrates are released, may be factors explaining the efficacy of the fruit in the treatment. Anyone who is unable to obtain bananas for celiac sufferers is advised to have his physician write or telegraph the Fruit Dispatch Company, Pier 3, North River, New York City.

Commenting on an article entitled "Non-poisonous Bread" in the August 31 issue of *Time*, Dr. James A. Tobey, director of nutrition of the *American Institute of Baking*, claims that the article is "prejudicial" and that Sherman's *Modern Bread from the Viewpoint of Nutrition* has been erroneously quoted. "While it is true that our bread recently has been 'nutritionally modernized' by enrichment with vitamins and minerals natural to whole wheat, and that it is improved by the use of liberal amounts of dry milk solids," says Dr. Tobey, "bread always has been recognized as a wholesome, nourishing food." He also points out that addition of milk solids to bread is not a new development, as the article in *Time* would imply.

Commercial Exhibits, American Dietetic Association, Detroit, October 19–22. Following is the list of exhibitors for the meeting. These exhibits, as in the past, will be a source of immediately helpful assistance to visiting dietitians and nutritionists. Well-informed representatives of food, equipment, publishing and educational institutions will be "at your service" throughout the 4-day convention, ready and able to answer the host of questions now facing directors of food services, teachers, and others.

Booth No.	
56–57	American Can Company, New York
6	Armour and Company, Chicago
38	Battle Creek Food Company, Battle Creek, Michigan
42	Best Foods, Inc., New York
29–30	Borden Company, New York
33–34–35	Carnation Company, Oconomowoc, Wisconsin
21	Chicago Dietetic Supply House, Chicago
28	Citrus Concentrates, Inc., Dunedin, Florida
18	City Fruit and Produce Company, Detroit
47	Cream of Wheat Corporation, Minneapolis
39	Cup and Container Institute, New York
54	R. B. Davis Sales Company, Hoboken, New Jersey



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manufactured by AD. SEIDEL & SON are not only designed for conservation of war essentials, but are still the best that money can buy.

When dietitians order *Seidel's Quality Food Products*, they do so with the assurance that they are receiving the maximum quality in scientifically prepared foods, desserts and fruit beverages. In addition to exclusive flavor creations, Seidel's Gelatine Desserts and Dry Beverages are ALL TRUE FRUIT—no artificial or synthetic flavors. Delicious and nutritious are Seidel's Cake Mixes, Cream Desserts, Concentrated Soups, etc. Nothing to add, except water.

Delegates attending the Detroit Dietetic Convention are cordially invited to visit Seidel's Exhibit (Booth #4) and inspect the display of delicious desserts, appetizing salads, DeLuxe Fruit Cakes as well as new products replacing those discontinued because of war shortages.

Fortified with 52 years of experience, AD. SEIDEL & SON are manufacturing a quality line of sugar saving products that are mastering difficult dietetic problems and definitely aiding the National victory program.

Seidel's Chef will serve you hot chicken soup. Its something new and very good. Be sure to try some.

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45 Fruit Dispatch Company, New York
53 General Foods Corporation, New York
44 General Grocer Company, St. Louis
25 General Mills, Inc., Minneapolis
5 Gerber Products Company, Fremont, Michigan
23 Hawaiian Pineapple Company, San Francisco
22 H. J. Heinz Company, Pittsburgh
58 Hilker & Bletsch Company, Cincinnati
12 Irradiated Evaporated Milk Institute, Chicago
13 Kellogg Company, Battle Creek, Michigan
7 Knox Gelatine Company, Johnstown, New York
55 Kraft Cheese Company, Chicago
46 Libby, McNeill & Libby, Chicago
11 J. B. Lippincott Company, Philadelphia
3 Macmillan Company, New York
59 Maltex Company, Inc., Burlington, Vermont
37 Mission Dry Corporation, Los Angeles
26 C. V. Mosby Company, St. Louis
48 National Dairy Council, Chicago
50 National Live Stock and Meat Board, Chicago
19–20 Pet Milk Company, St. Louis
31 Pfaelzer Brothers, Chicago
36 Phelps, Krag & Company, Inc., Detroit
8 Quaker Oats Company, Chicago
27 Ralston Purina Company, St. Louis
41 Robertshaw Thermostat Company, New York
9 W. B. Saunders Company, Philadelphia
14 Sealtest Laboratory Kitchen, New York
4 Ad. Seidel & Son, Chicago
61–62–63 John Sexton & Company, Chicago
49 Standard Brands, Inc., New York
10 Swift and Company, Chicago
40 Wander Company, Chicago
51 Wesson Oil & Snowdrift Sales Company, New York
16–17 Wisconsin Alumni Research Foundation, Madison, Wisconsin

VITAMIN DEFICIENCY

Recent surveys of vitamin deficiency disease have on the whole shown a disturbingly high incidence. Most of these reports have been made by careful, well-trained investigators, and the results seem dependable. However, it is important to take into account the locality in which the survey is made, the particular population group and the criteria for diagnosis. Some of the statements made in the lay press, on the other hand, must be interpreted with caution, such as those claiming that 50 per cent of the employees in a certain factory in southern California had clear-cut evidence of one or more sorts of vitamin deficiency. It is on this account that many more accurate surveys should be made in various parts of the country. . . . One of the most important practical aspects of nutritional disease is the question of variation in resistance to vitamin deficiency. It is well known that people do not all develop clinical signs with equal readiness; in many cases extremely poor diets may be tolerated for long periods before clinical evidences of disease occur. . . . It is necessary to emphasize again some of the problems involved in surveys of this sort. First, the eliciting of a satisfactory accurate dietary history is at times difficult, if not impossible, and, second, the judgment as to whether minor but yet specific signs of vitamin deficiency exist must often be uncertain. How much stress can be placed on vague symptoms of weakness, fatigue, insomnia, poor appetite and so on? What is the significance of a little dryness or roughness of the skin or a slight eczematoid condition at the nasolabial fold? Even the therapeutic test is often difficult to interpret in persons with such dubious phenomena. Finally, if some of these minimal signs are the results of vitamin lack, how serious are the implications? These and many other questions still require careful evaluation.—*Krupp, M. A.: The Incidence of Nutritional and Vitamin Deficiency, J.A.M.A., 119: 1475, 1942.*

THE AMERICAN DIETETIC ASSOCIATION

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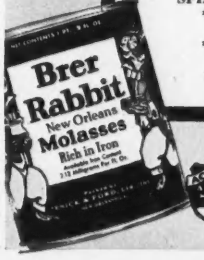
Three tablespoons of Green Label Brer Rabbit Molasses, added daily to the diet, supply 3 mg. of *available* iron. Or the amount may be increased at the direction of the physician. Penick & Ford, Ltd., Inc., New Orleans, La.

**Made by adding 1 tablespoonful of Brer Rabbit to a glass of milk.*

Brer Rabbit New Orleans Molasses is second only to liver as a food source of available iron

TABLE[1]	Total iron mg/100 gm	Per cent availability	Available iron mg/100 gm
MOLASSES "A"*	3.2	97	3.1
MOLASSES "B"**	6.0	85	5.1
BEEF LIVER	8.2	70	5.7
OATMEAL	4.8	96	4.6
APRICOTS (dry)	4.1	98	4.0
EGGS	3.1	100	3.1
WHEAT	5.0	47	2.4
RAISINS (Muscat)	3.0	62	1.9
PARSLEY	3.2	50	1.6
BEEF MUSCLE	3.0	50	1.5
OYSTERS	5.8	22	1.3
CABBAGE	1.8	72	1.3
MUTTON	5.1	24	1.2
LETTUCE	1.5	63	0.9
SPINACH	2.6	20	0.5

*Brer Rabbit Molasses—Gold Label (light, mild flavored)
**Brer Rabbit Molasses—Green Label (dark, full flavored)
1. Am. J. Dig. Dis. Vol. VI No. 7 (Sept.) pp. 459-62, 1939



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There is 1 full mg. of available iron in every tablespoonful of Green Label Brer Rabbit New Orleans Molasses.

Side-Lights on Food Control in Germany

The Berlin correspondent of a Stockholm paper, describing life in Berlin, says that "Both potatoes and alcohol have now (March 1942) disappeared almost entirely from the shops. Fish is rarely seen in the shops, and turkey, goose, chicken, duck, etc. have completely disappeared from shops and restaurants. . . . It is still difficult to obtain a table at one of the more popular places, where the public eat so-called coupon-free basic dishes and drink apple juice when they cannot obtain beer. The latter has greatly deteriorated and is rationed."

A German publication contained an article in November 1941 stating (obviously with Hitler's approbation) that "Food must be reserved for soldiers, mothers, and the country's youth. The war cannot be won by farmers doing small favors, but only by an ironlike hardness, by observing the regulations, and by orderly distribution."

A Königsberg newspaper release announced that, "A big meeting will be held at the Königsberg Town Hall when the District Party Leader will address everyone interested in food distribution on the subject of the measures being taken to insure smoother working and less grumbling, etc. The District Organization Leader stated recently that the vegetable shortage is not only due to the bad season, but also to transport difficulties in Königsberg, to the prevalence of the 'regular customers only' habit, and to an excess of black market goods, all of which must be energetically combated. Regardless of whether 680 Königsberg food distributors agree voluntarily, the proposals will be made effective anyhow.

"Five wagon loads of cucumbers arrived recently, but none appeared in the shops. Towards evening, however, men and women could be seen carrying cucumbers from the station in their shopping bags which were filled to bursting. The abuse of preference cards must also be stopped. Many complaints of the rudeness of shop assistants are being received, indeed hardly one polite word can be heard nowadays. To overcome this, a politeness competition will be arranged, prizes being offered to the politest waiters, saleswomen, etc." A Hamburg paper appeals for greater politeness which would "make life easier. Caterers must not merely say: 'No beer.' They must add a few polite words. Women must not lose their tempers even though they are doing heavy manual work."

A Swedish seaman, interviewed on his return to Sweden from a four-month stay in a Bremen hospital, states that the food consisted largely of dishes made of cabbage and rootcrops, and as a change, very watery gruel. Bread was rationed but was sufficient. Meat was very seldom seen, and butter and eggs were available once in four months. A Swedish paper reports that "Restaurant menus are a puzzle game of grams and coupons, and eggs never occur on them. Nobody starves, but the Germans admit that they are never really satisfied however often they eat; the lack of fats does not give the food for nourishment required by hardworking citizens. The problem is hardest for people with single-person households such as office girls, etc. A few slices of sausage for sandwiches exhaust the entire day's meat ration. . . . It is difficult to choose a non-meat dish as the present egg and vegetable shortage makes the concoction of a nourishing dish difficult."

A German publication contained an article in January saying that "People have a bad habit of talking about food. We suffer from a surplus of gastric acid, because generations of Germans have consumed too much pork and too many veal chops. In wartime this acid surplus affects the gastric nerves, causing wishful thinking which is often put into words. If one starts talking about the Moonlight Sonata one suddenly finds oneself thinking of what one ate or drank while sitting in the moonshine, and without knowing how, one is talking about sausages."—*British Press Service release, July 1942.*